wideye™

liberating communications

User Guide

SABRE™ RANGER

Rev 1.0

inmarsat

www.wideye.com.sg

Copyright

© Copyright 2009 Addvalue Communications Pte Ltd.

All rights reserved. This publication and its contents are proprietary to Addvalue Communications Pte Ltd. No part of this publication may be reproduced in any form or by any means without the written permission of Addvalue Communications Pte Ltd., 190, Changi Road, #02-02, MDIS Building, Singapore 419974.

Warranty

Addvalue Communications Pte Ltd has made every effort to ensure the correctness and completeness of the material in this document. Addvalue Communications Pte Ltd shall not be liable for errors contained herein. The information in this document is subject to change without notice. Addvalue Communications Pte Ltd makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

Trademarks

All trademarks, marks, names, or product names referenced in this publication are the property of their respective owners, and Addvalue Communications Pte Ltd neither endorses nor otherwise sponsors any such products or services referred to herein.

SABRE™ and IOTA™ are trademarks of Addvalue Communications Pte Ltd.

Microsoft, Windows, Windows NT, Windows 2000, and Windows XP are registered trademarks of Microsoft Corporation in the U.S.A. and/or other countries.

INMARSAT is a trademark of the International Mobile Satellite Organization. The Inmarsat LOGO and the trademark BGAN are trademarks of Inmarsat (IP) Company Limited. All trademarks are licensed to Inmarsat Limited.

All other company and product names may be the registered trademarks or trademarks of their respective owners.

SABRE™ Ranger User's Guide [May 2009]

Regulatory Information

Federal Communication Commission Notice

FCC Identifier: QY9-SBRANGER

USE CONDITIONS:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two Conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

NOTE:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

IMPORTANT NOTE: EXPOSURE TO RADIO FREQUENCY RADIATION

This Device complies with FCC & IC radiation exposure limits set forth for an uncontrolled environment. The Antenna used for this transmitter must be installed to provide a separation distance of at least 100cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

FCC CAUTION:

Any Changes or modifications not expressly approved by the manufacturer could void the user's authority, which is granted by FCC, to operate this satellite terminal SABRE™ Ranger.

Industry Canada Statement:

IC Identifier: 5023A-SBRANGER

This device complies with Radio standard specification RSS -170 of Industry Canada Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE: Radiation Exposure Statement

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This antenna used for this transmitter must be installed to provide a separation distance of at least 100cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

Declaration of Conformity:

Addvalue Communications Pte Ltd, 190 Changi Road, #02-02 MDIS Building, Singapore 419974 declares under our sole responsibility that the Product, brand name as Wideye and model: SABRE™ Ranger (Satellite Broadband Communicator) a GMPCS Terminal to which this declaration relates, is in conformity with the following standards and/or other normative documents:

ETSI EN 301 489-1 , ETSI EN 301 489-20, ETSI EN 301 681, ETSI EN 300 328 , EN 50385 , EN 50371
IEC 60950 – 1 AND EN 60950-1, ITU-R M.1480

We hereby declare that all essential radio test suite have been carried out and that the above named product is in conformity to all the essential requirements of Directive 1999/5/EC.

The Conformity Assessment procedure referred to Article 10 and detailed in Annex [III] or [IV] of Directive 1999/5/EC has been followed with involvement of the following notified body(ies):

TIMCO ENGINEERING, INC., P.O BOX 370,NEW BERRY, FLORIDA 32669.
Identification mark: 1177 (Notified Body number)

The technical documentation relevant to the above equipment are held at:

- Addvalue Communications Pte Ltd, 190 Changi Road, #02-02 MDIS Building, Singapore 419974.
- Signed by Mr. Tan Khai Pang (Chief Technology Officer, April 30, 2009) and Mr. Prabakar Kuttaniseeri (Manager-Quality Engineering, April 30, 2009).

Safety Information

For your safety and protection; and to reduce the risk of hazards, read this entire user's manual before you attempt to use the SABRE™ Ranger satellite terminal. In particular, read this safety section carefully. Keep this safety information where you can refer to it if necessary.

The following general safety precautions must be observed during all phases of operation, service and repair of this equipment.

Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture and intended use of the equipment.

Addvalue Communications Pte Ltd assumes no liability for the customer's failure to comply with these requirements.

General

Handle your satellite terminal with care. The enclosure is weather resistant (IP65); however, do not submerge the unit or expose it to severe rainstorms.

Avoid placing the satellite terminal close to cigarettes, open flames or any source of heat.

Changes or modifications to the satellite terminal not expressly approved by Addvalue Communications Pte Ltd could void your authority to operate this equipment.

Only use a soft cloth moisten with water to clean the satellite terminal. Do not use any detergents or cleaning agents on the satellite terminal.

To avoid impaired satellite terminal performance, please ensure the unit's antenna is not damaged or covered with foreign material like paint or labeling. When inserting the SIM card, do not bend it or damage the contacts in any way. When connecting the interface cables, do not use excessive force.

WARNING

Please follow strictly the warning instructions listed below to avoid personal injury.

Use Approved Accessories Only

Use only the AC/DC power adapters and accessories provided with the satellite terminal. Use of non-approved adapters and accessories may result in loss of performance, damage to the satellite terminal, fire, electric shock or injury. The AC/DC power adapters are for indoor use only.

Do Not Operate in an Explosive Atmosphere and Hazardous Locations

Do not operate the equipment in the presence of flammable gases or fumes.
Operation of any electrical equipment in such an environment constitutes a definite safety hazard.

Keep Away from Live Circuits

Do not remove the terminal covers. Only qualified maintenance personnel are allowed to perform component replacement and internal adjustment. Do not replace components with the power cable connected. Under certain conditions, dangerous voltages may exist even with the power cable removed. To avoid injuries, always disconnect power and discharge circuits before touching them.

Qualified Installation

The satellite terminal must be installed by a qualified personnel in accordance with applicable local and national regulations (e.g. CEC, NEC, FCC, SCC, etc).

Lightning Protection During Installation
Ensure lightning protection devices are installed prior to the installation of the satellite terminal. Do not disconnect and reconnect cables during a lightening storm.

Do Not Service Alone
Do not attempt internal service or adjustments unless another person, capable of rendering first aid resuscitation, is present.

Connecting Devices
Never connect incompatible devices to the satellite terminal. When connecting the satellite terminal to any other device, read the device's User Manual for detailed safety instructions.

Connecting Phone Devices
This satellite terminal is not intended to be connected to any North American (U.S., Canada) TNV circuit or PSTN (Public Switch Telephone Network).

Do Not Substitute Parts or Modify Equipment
Because of the danger of introducing additional hazards, do not substitute parts or perform any unauthorized modification to the satellite terminal.

Do Not Stand In Front Of The Antenna
This satellite terminal emits radio frequency energy. To avoid injury, do not place head or other body parts in front of the satellite antenna when system is operational. Maintain a distance of one meter or more from the front of the satellite terminal antenna.

FCC RF Hazard Warning
High levels of radio frequency radiation are considered health hazardous. Although no single value of "safe radiation level" has been agreed upon by all countries, the American National Standards Institute (ANSI/LEEE C 95.1-1992) recommends that people should not exposed to radiation stronger than 1 milliwatt per square centimeter at the frequencies used in the Addvalue's Wideye SABRE Ranger terminal. Accordingly, the operator of the terminal should ensure that the area extending 1 meter from the Front of the antenna be kept clear of personnel when the terminal is transmitting.

The antenna is built-in within SABRE™ Ranger. You, as the qualified end-user of this radio device must control the exposure conditions of bystanders to ensure the minimum separation distance (above) is maintained between the antenna and nearby persons for satisfying RF Exposure compliance. The operation of this transmitter must satisfy the requirements of Occupational/Controlled Exposure Environment, for work-related use. Transmit only when person(s) are at least the minimum distance from the front face of the antenna.

WARNING:
Maintain a separation distance from the antenna to a person(s) of at least 1 meter.

Antenna Safety Instructions
Antenna Minimum Safe Distance: 1 meter

OBTAINING LICENSING FOR INMARSAT TERMINALS

Under rights given under ITU Radio Regulations, local telecommunications administrations establish and enforce national rules and regulations governing types of emissions, power levels, and other parameters that affect the purity of signal, which may be radiated in the various frequency bands of the radio spectrum.

To legally operate Inmarsat equipment, it is necessary to obtain permission from the local telecommunications regulatory authorities of the country you are operating from. Using your equipment in any country without permission causes you to run the risk of confiscation of the equipment by the local authorities. The normal procedure to bring such equipment into another country is to apply for a license before travel. If a license has not been obtained before travel, the equipment may be put in to storage by local authorities until such time license is obtained.

Release date: 28th May 2009

Information in this document is subject to change without notice and does not represent a commitment on the part of Addvalue Communications Pte Ltd.

Copyright © 2009 Addvalue Communications Pte Ltd. All rights reserved.

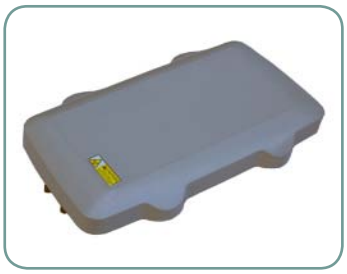
Addvalue Communications Pte Ltd.
190, Changi Road.
#02-02, MDIS Building.
Singapore 419974
T: +65 63425425
F: +65 63425426

www.wideye.com.sg

Table of Contents

Copyright i
Warranty i
Trademarks i
Regulatory Information ii
Safety Information iv
Table of Contents vii
About the User's Guide ix

Chapter 1 — Product Overview



Key Features 2
System Requirements 2
Unpacking the SABRE™ Ranger 3
Getting to Know the SABRE™ Ranger 4

Chapter 2 — Setting Up the SABRE™ Ranger

Installing the SIM card 7
Connecting the Multi-function and Heater Power Cables 8
Setting Up the Mounting Frame 10
Installing Mounting Frame 10
Mounting the SABRE™ Ranger 11
Positioning the SABRE™ Ranger 11
Powering up the SABRE™ Ranger (V1 Variant) 12
Powering up the SABRE™ Ranger (V2 Variant) 13
Connecting to your Computer using Ethernet 14
Connecting to your Phone 15

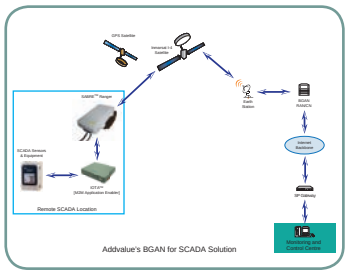
Chapter 3 — Using SABRE™ Ranger Web Console

Activating SABRE™ Ranger Web Console 16
Registering with the BGAN Network 18
Menu Overview 21
Status Indicators 21
Viewing Terminal Information 22
Phone Menu 23
SMS Menu 28
Data Menu 34
Settings Menu 39

Chapter 4 — Using SABRE™ Ranger for Remote Unmanned SCADA Applications

Connecting to a M2M Application Enabler 47
Remote SMS Command and Control 48

Appendices



Troubleshooting 49
Temperature Warnings 51
Error Messages 52
Firmware Upgrade 53
Voice Mail Access 54
The BGAN System 55
BGAN for SCADA Solution 56
Wideye™ IOTA™ 57
AT Commands List 59
Technical Specifications 62

About the User's Guide

Intended readers
This user's guide is for the installation and operation of the SABRE™ Ranger terminal. The readers of the user's guide include anyone who is using or intends to use the SABRE™ Ranger terminal. No specific skills are required to operate the SABRE™ Ranger terminal. However, it is important that you observe all safety requirements listed in the Safety Information and in the Antenna safety instructions in the beginning of this user's guide, and operate the SABRE™ Ranger terminal according to the guidelines in this user's guide.

User's guide overview
This user's guide may not always reflect the latest software functionality of your SABRE™ Ranger terminal. To obtain the latest version of the user's guide, please download the latest version from your respective distributor.

The user's guide has the following chapters:

Chapter 1 - Product Overview
Provides an overview introduction, key features and system requirements for the SABRE™ Ranger terminal.

Chapter 2 - Setting Up the SABRE™ Ranger
Setting up explains how to insert SIM card, connect the Multi-function cable, mounting and powering the terminal; and connecting to your computer using a Ethernet cable.

Chapter 3 - Using SABRE™ Ranger Web Console
This chapter explains how to use the built-in web interface of the SABRE™ Ranger terminal, and describes available menus and settings. It also explains how to configure settings for the SABRE™ Ranger terminal using this interface.

Chapter 4 - Using SABRE™ Ranger for remote unmanned SCADA applications
Provides an overview of using the SABRE™ Ranger terminal with a M2M Application Enabler that allows control of the BGAN Terminal and also to interface with various types of SCADA equipment.

Appendices
The appendices list contains the following sections:

- Troubleshooting: contains a short troubleshooting guide.
- Temperature Warnings: a guide to temperature warnings.
- Error Messages: contains a list of error messages that may appear.
- Firmware upgrade: explains how to upgrade the firmware.
- Voice Mail Access: a guide to access Voice Mail.
- The BGAN System: provides an overview of the BGAN system and services.
- SCADA Solution: provides an overview of the SCADA application using the SABRE™ Ranger terminal.
- IOTA™: a brief description of the IOTA™, a M2M application enabler.
- AT Commands List: a list of all the commands that you can use with the SABRE™ Ranger terminal.
- Technical Specifications: contains technical specifications for the SABRE™ Ranger terminal and information on conformity.

Typography

In this user's guide, the following typography is used as indicated below:

Bold is used for the following purposes:

To emphasize words.

Example:
"Do not touch the antenna front during pointing".

To indicate what the user should select in the user interface.

Example:
"Select **European Caller Line ID Phone Connected** or **US Caller Line ID Phone Connected** from the **Telephone Interface Configuration** drop-down menu.".

Italic is used to emphasize the paragraph title in cross-references.

Example:
"For further information, see *Connecting Cables* on page...".

Product Overview

The SABRE™ Ranger is a BGAN Terminal specifically designed for permanent outdoor remote unmanned SCADA applications. The ruggedized design allows the terminal to be installed outdoors to withstand extreme weather conditions for extended periods of time. The SABRE™ Ranger provides built-in Ethernet and telephone ports, providing voice, SMS and data services.

Control Interface

The SABRE™ RANGER can be controlled using SABRE™ Ranger's Web-Console with a computer connected via the Ethernet interface. The Web-Console provides full configuration and setup functions for the terminal.

AT Commands Interface

The SABRE™ Ranger terminal can be controlled using AT commands sent from a computing device via Ethernet.

Key Features

Standard BGAN features

- Simultaneous voice & data communications
- Data rate of up to 384 kbps
- Built-in Ethernet and Telephone interfaces
- Supports voice, email, messaging, VPN, FTP, VoIP, FoIP and video media streaming

Ruggedized Mechanical Enclosure features

- Enhanced vibration and shock resistance

SMS Activation feature

- Remote SMS IP activation and deactivation

Compliance

- IP65 certified
- FCC
- CE
- IC
- CSA Safety

System Requirements

These are the minimum desktop or laptop computer system requirements for successful interface with the SABRE™ Ranger terminal:

- Intel Pentium III CPU (or above)
- 200 MB of free hard disk space
- 256 MB of RAM
- Ethernet port (RJ45)
- CD-ROM drive (for installation of software utilities and documentations)

For data connection using Ethernet (Router Mode):

1. A desktop or laptop computer running one of the following operating systems:
   - Microsoft® Windows®
   - Mac OS® 10.1
   - Linux-based OS.
   - Any other desktop OS.
2. Your desktop or laptop computer must support RJ45 Ethernet interface.
3. A desktop or laptop computer installed with JAVA-enabled Internet browsers.

For Voice, any corded analog phone (ESTI and Bellcore standards) can be used via the phone port.

Unpacking your SABRE™ Ranger

Congratulations on the purchase of your SABRE™ Ranger terminal.

When you unpack the package, please check that the following items are present:

- SABRE™ Ranger terminal
- AC/DC power adapter with power cable
- Mounting frame (including four allen screws with washers, four bolts with nuts and washers)
- Two U-bolts with four washers and nuts
- Ethernet cable (RJ45, Cat 5 Straight, 1.5m)
- Phone cable (RJ11, 1.8m)
- Multi-function cable (10 metres. packed separately)
- Heater power cable (only for SABRE™ Ranger-V2)*
- AC/DC power adapter with power cable (additional unit only for SABRE™ Ranger-V2)*
- Installation guide (printed copy)
- Product CD (software utilities and documentations)

If any of the items are missing from the package, please contact your reseller where you have purchased the satellite terminal package.

Note:
There are two variants of the SABRE™ Ranger terminal:

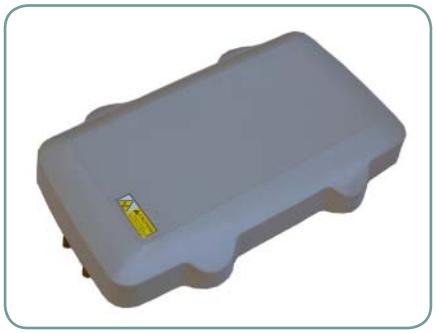
SABRE™ Ranger-V1:
Terminal without the heater option has only one cable gland hole on the connector cover to connect the Multi-function cable.

When using the SABRE™ Ranger-V1 terminal without the heater option, please disregard the connection of the Heater power cable in this user's guide.

SABRE™ Ranger-V2*:
Terminal with the heater option has two cable glands holes on the connector cover to connect the Multi-function and Heater power cables.

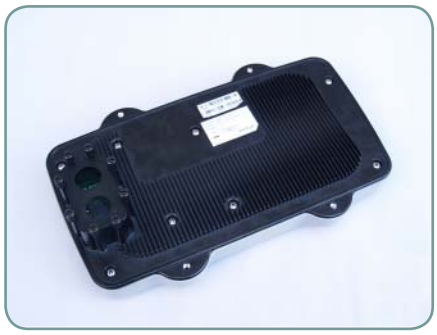
Note*:
The pictures used in this guide shows the **SABRE™ Ranger V2** terminal with the heater option.

Getting to know your SABRE™ Ranger

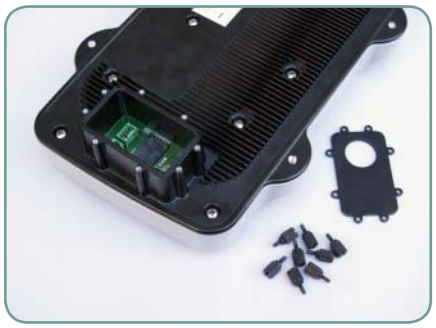


SABRE™ Ranger Terminal
Front View

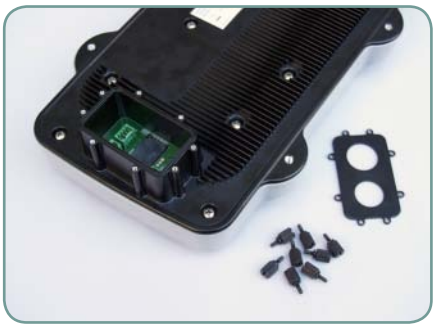
SABRE™ Ranger V1 Terminal
Rear View



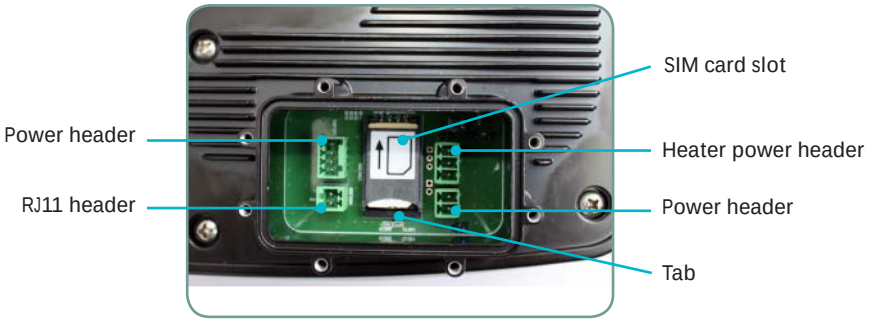
SABRE™ Ranger V2 Terminal
Rear View



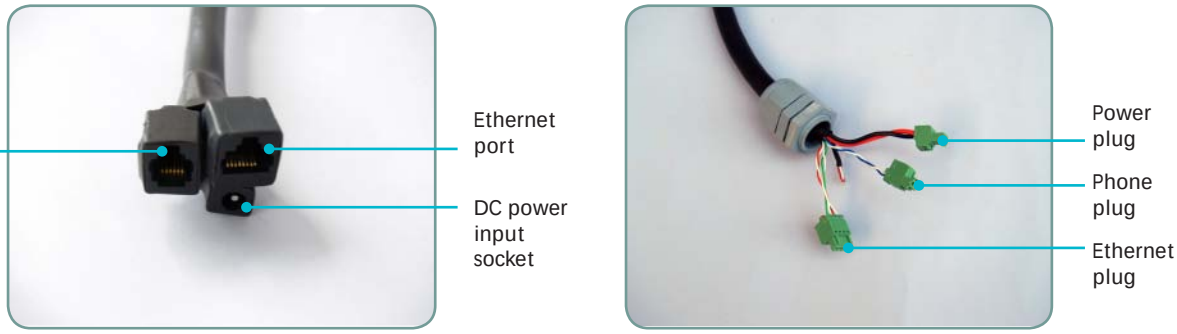
SABRE™ Ranger V1 Terminal
Connector cover and thumb-screws



SABRE™ Ranger V2 Terminal
Connector cover and thumb-screws



Connection headers and
SIM card slot



Multi-function Cable

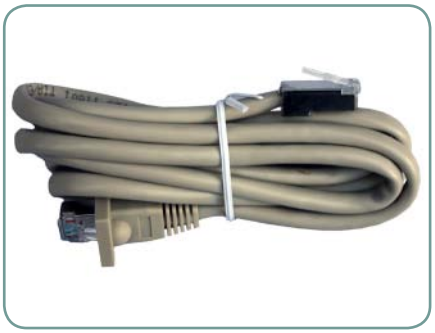
AC/DC Power Adapter

3-Pin Power Cord (UK-Type)

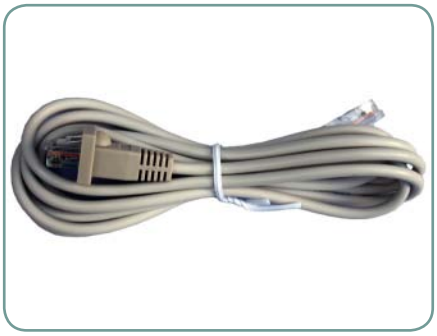
2-Pin Power Cord (Euro-Type)

2-Pin Power Cord (US-Type)

Note:
The SABRE™ Ranger-V2 terminal package is equipped with two units of AC/DC power adapters with power cables.



Cat. 5 Network/Ethernet Cable
IP54-Compliant 8P4C RJ45 (1.5m)



Telephone Cable
IP54-Compliant 6P4C RJ11 (1.8m)

Mounting Frame
(with four allen screws and washers, and four bolts with nuts and washers)

U-Bolts
(with four washers and nuts)

Heater Power Cable
(only for SABRE™ Ranger-V2)

Product CD
(software utilities and documentations)

Installation Guide
(printed)

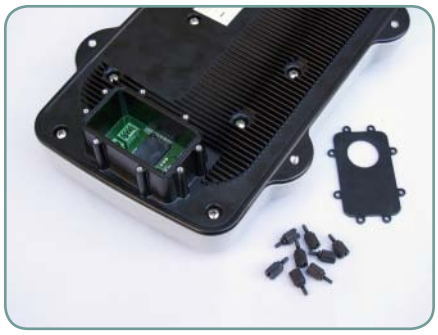
Setting Up the SABRE™ Ranger

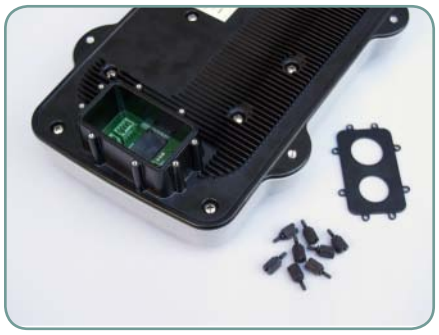
Installing the SIM Card

Follow these steps to install the SIM card:

1. Remove the eight thumb-head screws securing the connector cover.

2. Remove and keep the connector cover and the eight thumb-head screws in a safe location.





3. Push tab and lift up the SIM card slot.

Location of the SIM card slot.

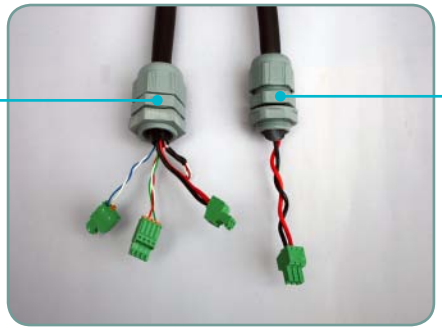
4. With the gold-contacts facing down, position the SIM card as indicated and slide the SIM card into the slot.

5. Push the SIM cardholder down until it clicks and lock in place.

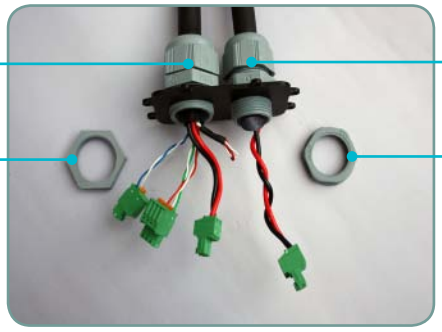
Connecting the Multi-function and Heater Power Cables

Follow these steps to connect the Multi-function and Heater cables:

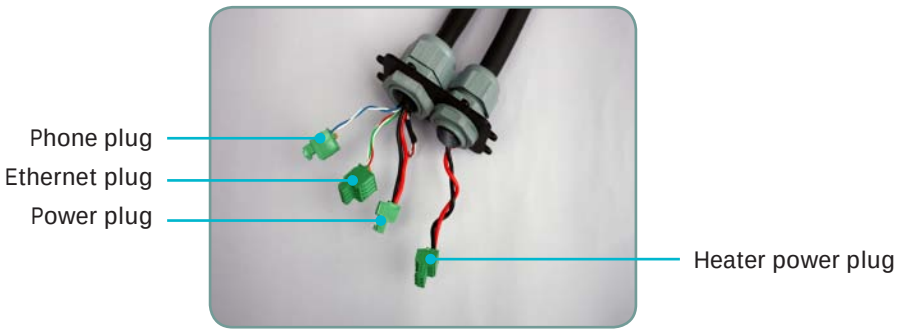
1. Remove the running couplers from the cable glands attached to the Multi-function and Heater power cables.



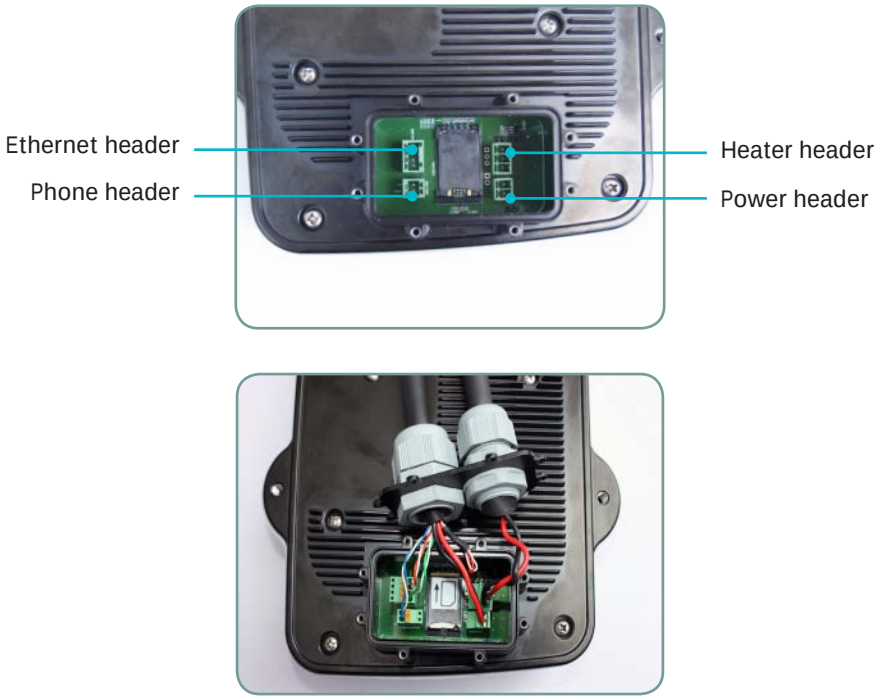
2. Thread the three connectors of the Multi-function cable and the connector of the Heater power cable through the connector cover.



3. Install running couplers to secure the Multi-function and Heater power cables to the connector cover.



4. Install the Multi-function and Heater cable plugs to the respective headers on the SABRE™ Ranger terminal.

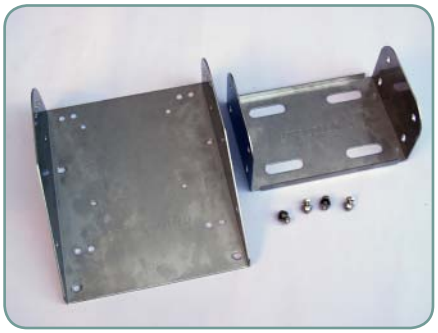


5. Install and secure the connector cover with the eight thumb-head screws.

Setting Up the Mounting Frame

Follow these steps to setup the mounting frame:

1. Align the mounting frame as shown below.
2. Install four bolts with washers to secure the mounting frame together.



Installing the Mounting Frame

Follow these steps to install the mounting frame:

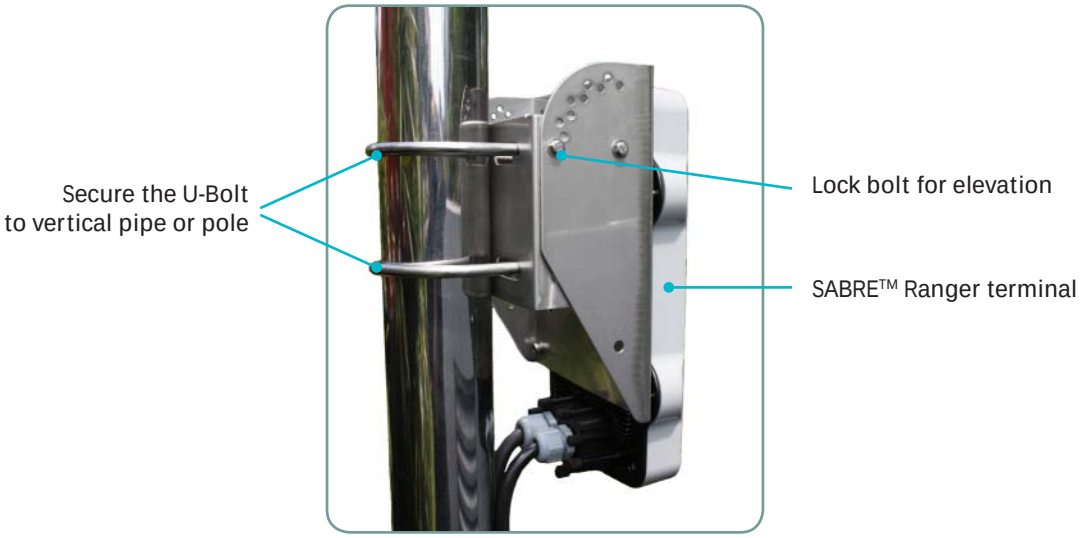
1. Place mounting frame on the back end of the SABRE™ Ranger terminal.
2. Orientate the mounting frame to desired position as shown.

3. Install four allen-screws with washers to secure mounting frame to the SABRE™ Ranger terminal.

Mounting the SABRE™ Ranger

Follow these steps to mount the SABRE™ Ranger terminal:

1. Locate a vertical pole or column to mount the SABRE™ Ranger terminal.



2. Mount the SABRE™ Ranger terminal to the vertical pole or column using two U-bolts, four nuts and washers.
3. Tighten the four nuts evenly to secure the SABRE™ Ranger terminal to the vertical pole or column.

Positioning the SABRE™ Ranger

Follow these steps to position the SABRE™ Ranger terminal:

1. Remove two lock bolts and nuts on either side of the mounting frame.
2. Adjust the elevation of the SABRE™ Ranger terminal and secure its position using the two lock bolts and nuts on either side of the mounting frame.

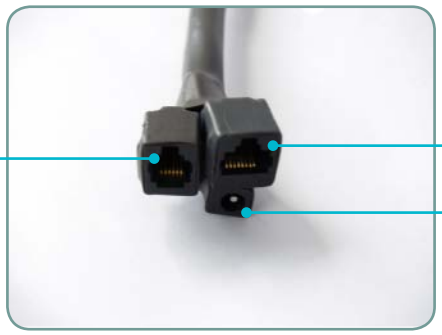
3. Secure the length of the Multi-function and Heater power cables to the pole or column using cable ties.

Note:
Ensure there is some slack at both ends of the Multi-function and Heater power cables to avoid stress build-up, which may damage the cable glands.

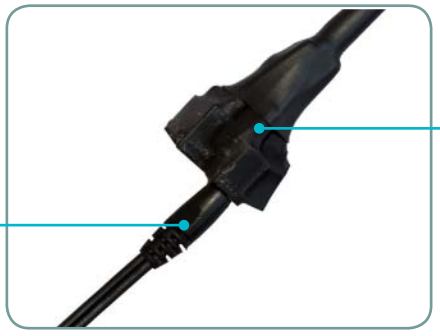
Powering Up the SABRE™ Ranger (V1 Variant)

Follow these steps to power up the SABRE™ Ranger (V1 variant) terminal:

1. Insert the power adapter output connector into the DC power input socket on the Multi-function cable.



2. Insert the plug end of the power adapter into an AC outlet.



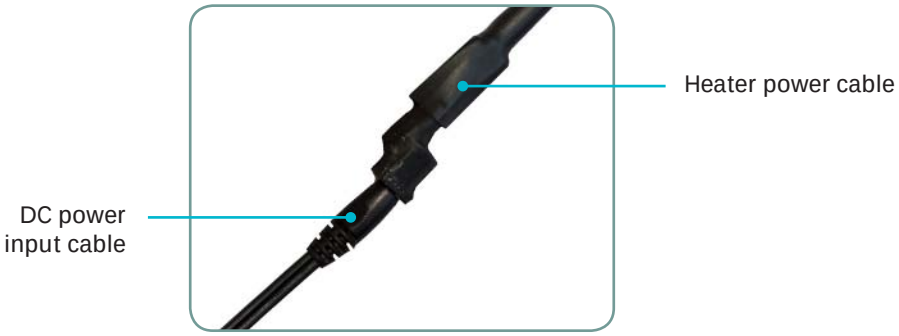
3. Turn on the power to power up the SABRE™ Ranger terminal.

Powering Up the SABRE™ Ranger (V2 Variant)

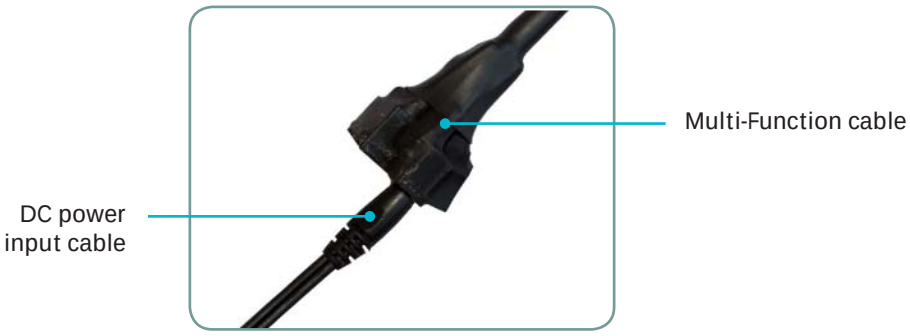
Note:
This following steps are applicable only if you are using the SABRE™ Ranger (V2 variant) terminal:

Follow these steps to power up the SABRE™ Ranger (V2 variant):

1. Insert the power adapter output connector into the DC power input socket on the Heater power cable.



2. Insert the plug end of the power adapter into an AC outlet.
3. Insert the power adapter output connector into the DC power input socket on the Multi-function cable.

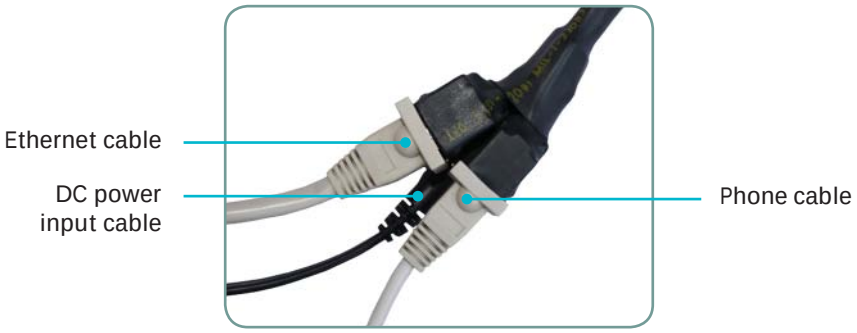


4. Insert the plug end of the power adapter into an AC outlet.
5. Turn on the power to power up the heater and SABRE™ Ranger terminal.
6. Allow 30 minutes for the heater to warm up the SABRE™ Ranger terminal.
7. Check to see if the SABRE™ Ranger terminal is working normally.
8. If the SABRE™ Ranger terminal is not working properly, proceed to power cycle the terminal.
   After this process, the SABRE™ Ranger terminal should be working normally.

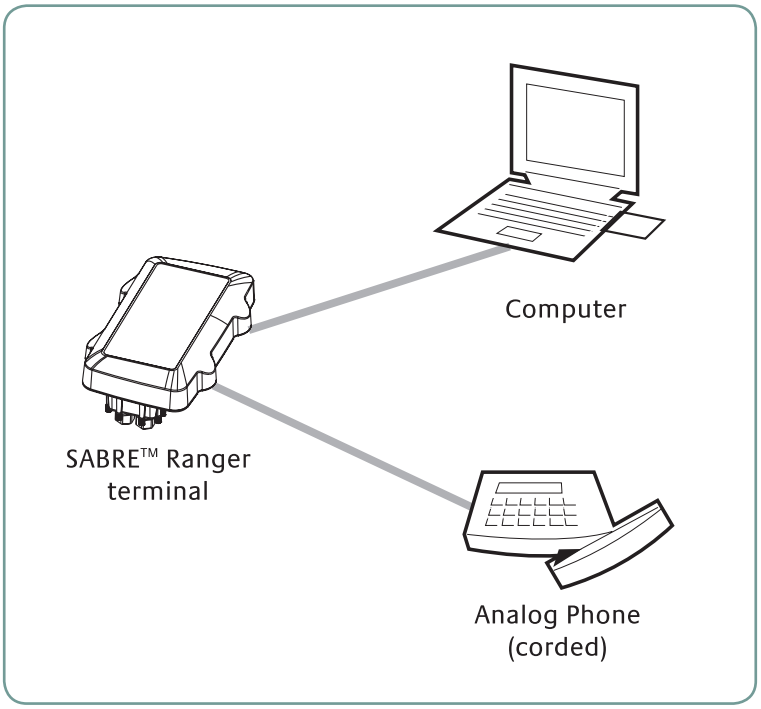
Connecting to your Computer using Ethernet

Follow these steps to connect the SABRE™ Ranger terminal to your computer using Ethernet:

1. Insert one connector end of the Ethernet cable to the Multi-function cable's Ethernet port.



2. Insert the other connector end of the Ethernet cable to your computer's Ethernet port. A message confirming connection is displayed on your computer.

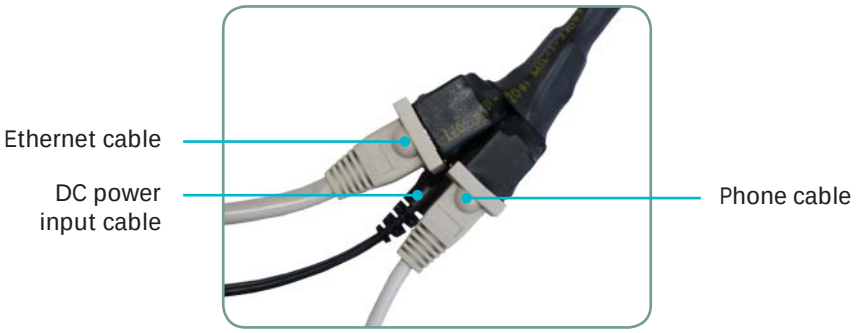


Connecting to your Phone

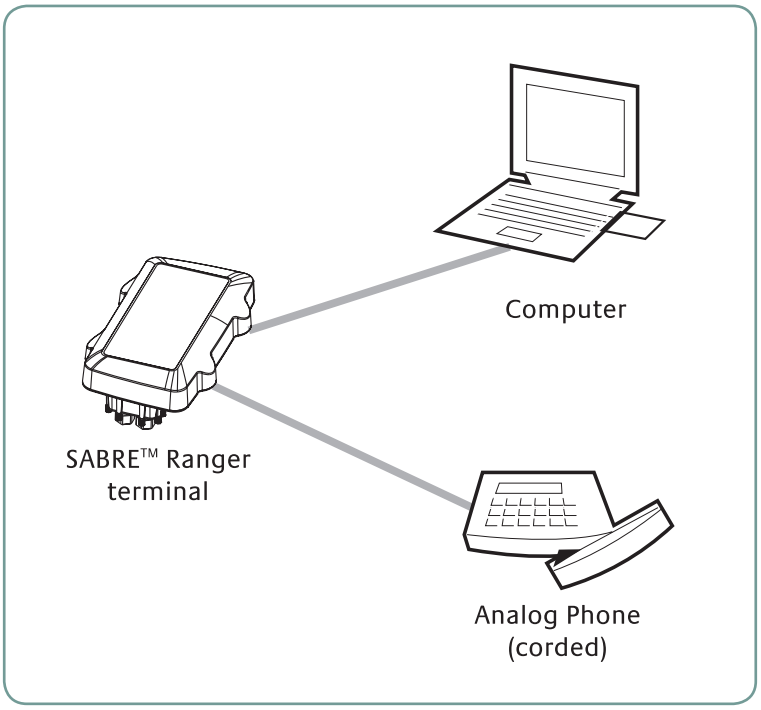
Note:
This SABRE™ Ranger terminal is not intended to be connected to any North American (U.S., Canada) TNV circuit or PSTN (Public Switch Telephone Network).

Follow these steps to connect the SABRE™ Ranger terminal to your analog (corded) phone:

1. Insert one connector end of the Phone cable to the Multi-function cable's Phone port.



2. Insert the other connector end of the Phone cable to your analog (corded) phone.



3. To make phone calls, dial the other party's number using the following format:

   00 <country code> <phone number> followed by # key.

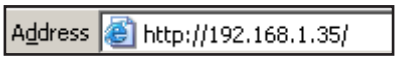
Chapter 3

Using SABRE™ Ranger Web Console

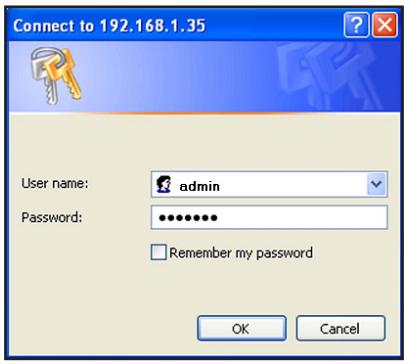
Activating SABRE™ Ranger Web Console

1. When the Ethernet connection between the SABRE™ Ranger terminal and your computer has been setup, start your Internet browser.
2. Type http://192.168.1.35 in the Address field and press Enter.

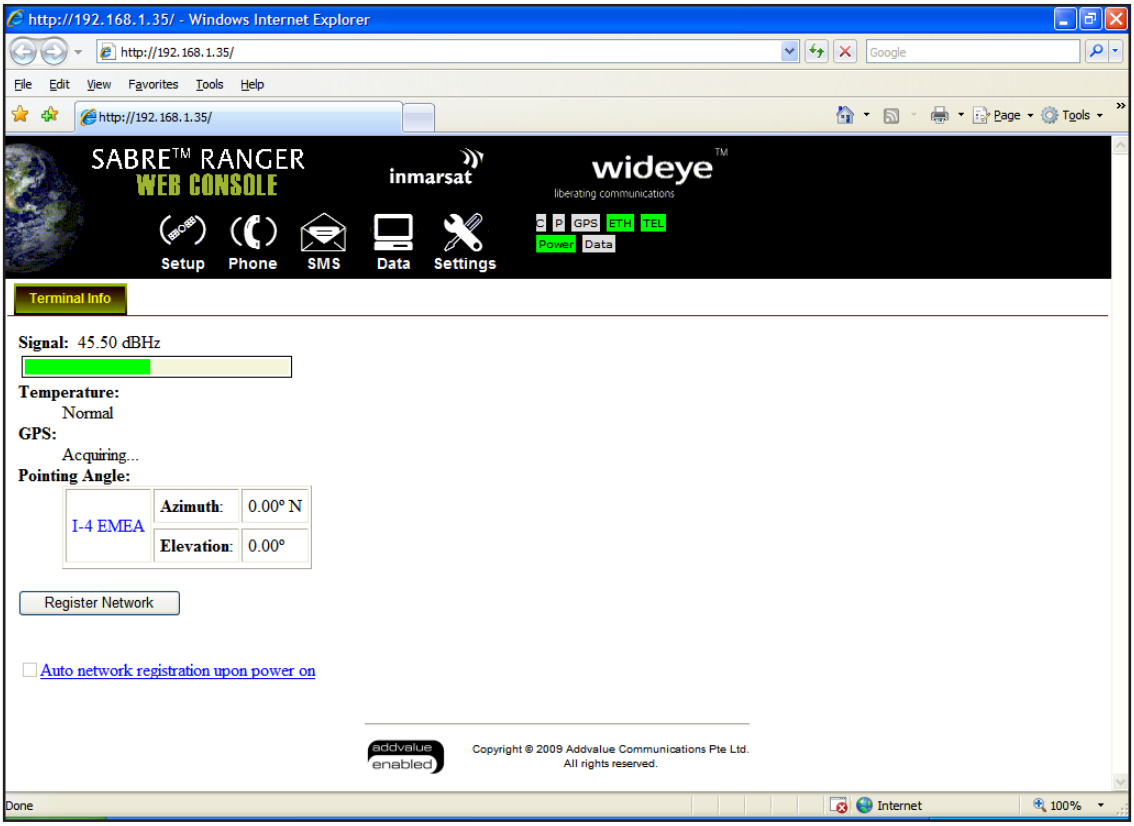
   The Connect to 192.168.1.35 login screen appears.



3. At the login screen, type in admin in the Username field and wideye in the Password field. Click OK.



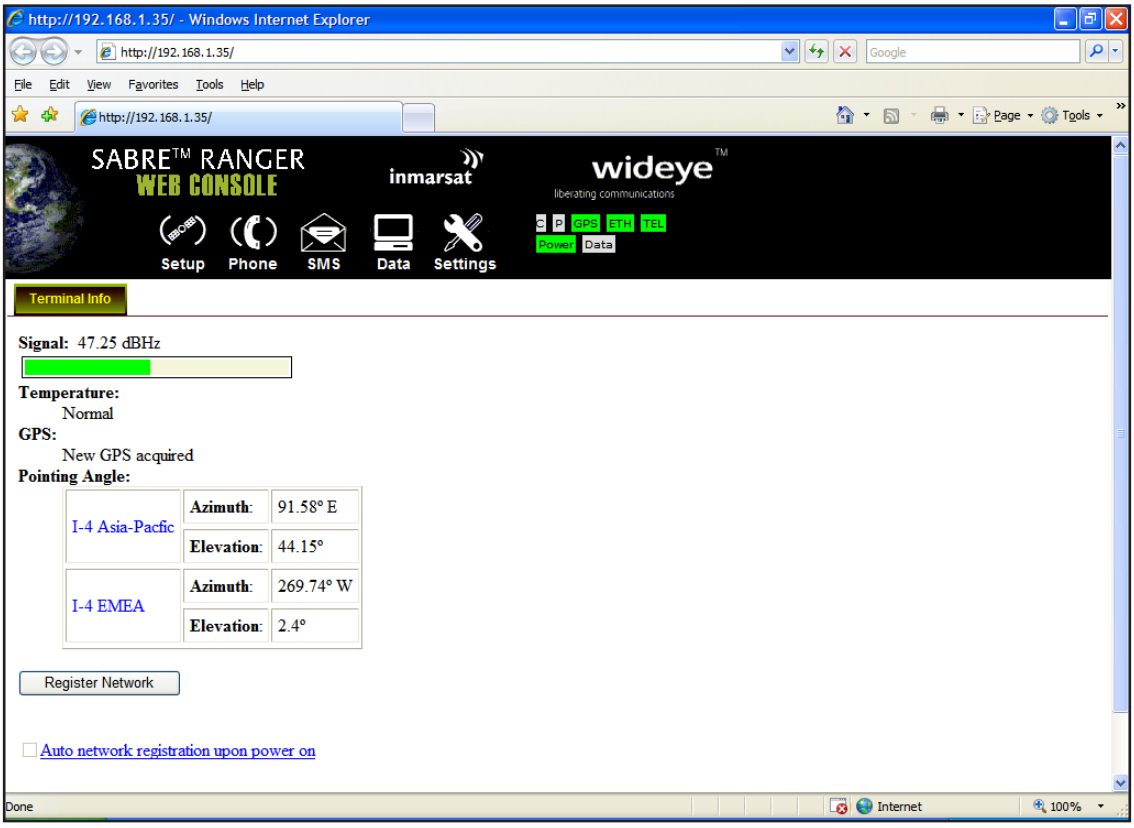
4. The SABRE™ Ranger Web Console will appear on your screen.



5. Allow the terminal a few minutes to acquire the GPS co-ordinates.
   Once the GPS co-ordinates is acquired, the New GPS acquired message is displayed.

   Note:
   The GPS co-ordinates will not be displayed until you click Register Network to register to Inmarsat's BGAN network. The GPS display prohibited message will be displayed if the GPS coordinates are prohibited by the BGAN network.

   It is recommended to register to the BGAN network after acquiring new GPS co-ordinates before powering down the terminal. This will ensure the GPS co-ordinates are stored in the terminal's memory.



Registering with the BGAN Network

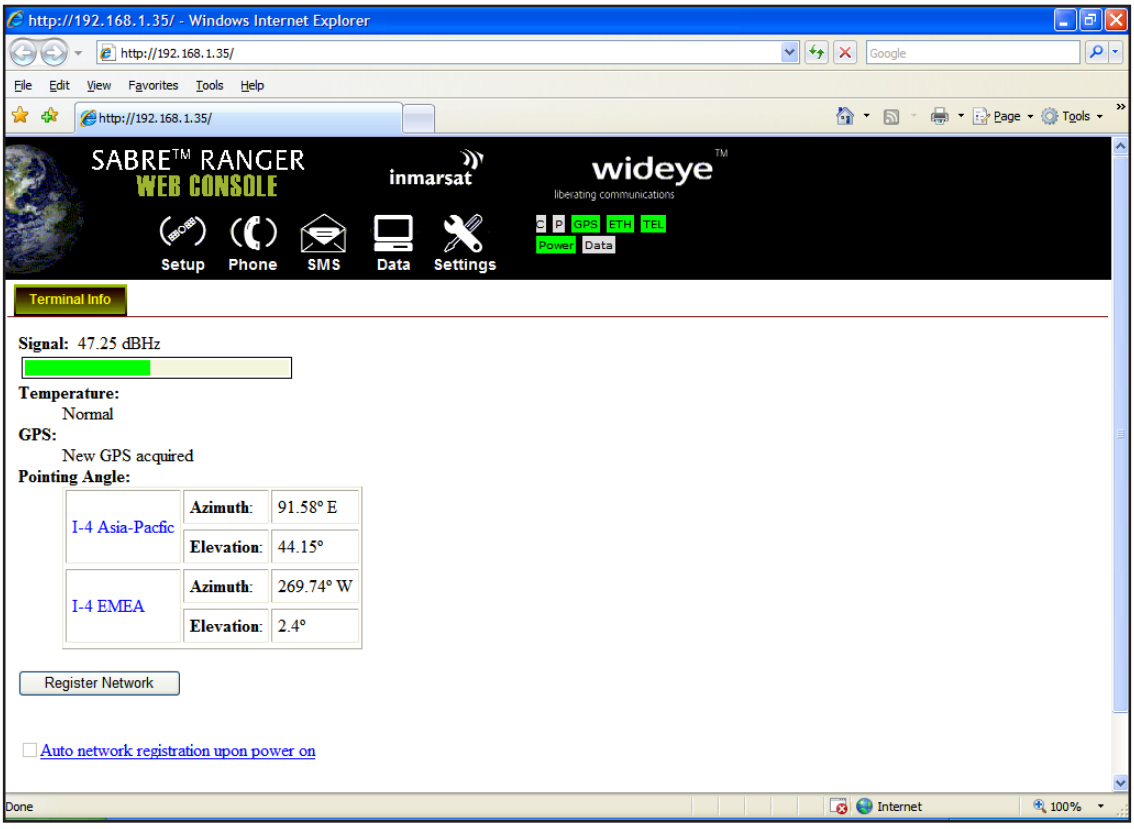
Establishing a connection with the BGAN network requires the careful orientation of the SABRETM Ranger terminal towards the satellite, a process called antenna pointing.

To perform antenna pointing, you will need a compass and the following information from the Web Console:

- Pointing Angle (Azimuth and Elevation)
- Signal stength indicator bar

With the SABRE™ Ranger Web Console launched, follow these steps to register with the network:

1. Select the satellite you want the SABRETM Ranger terminal to point to.
2. Rotate the terminal left or right until it points in the correct horizontal direction as indicated in the Azimuth reading with the aid of a compass.
3. Tilt the terminal slowly up or down until it points in the correct vertical direction as indicated in the Elevation reading.
4. With the aid of the Signal indicator bar on the Web Console, fine tune the pointing direction to obtain the maximum signal strength.



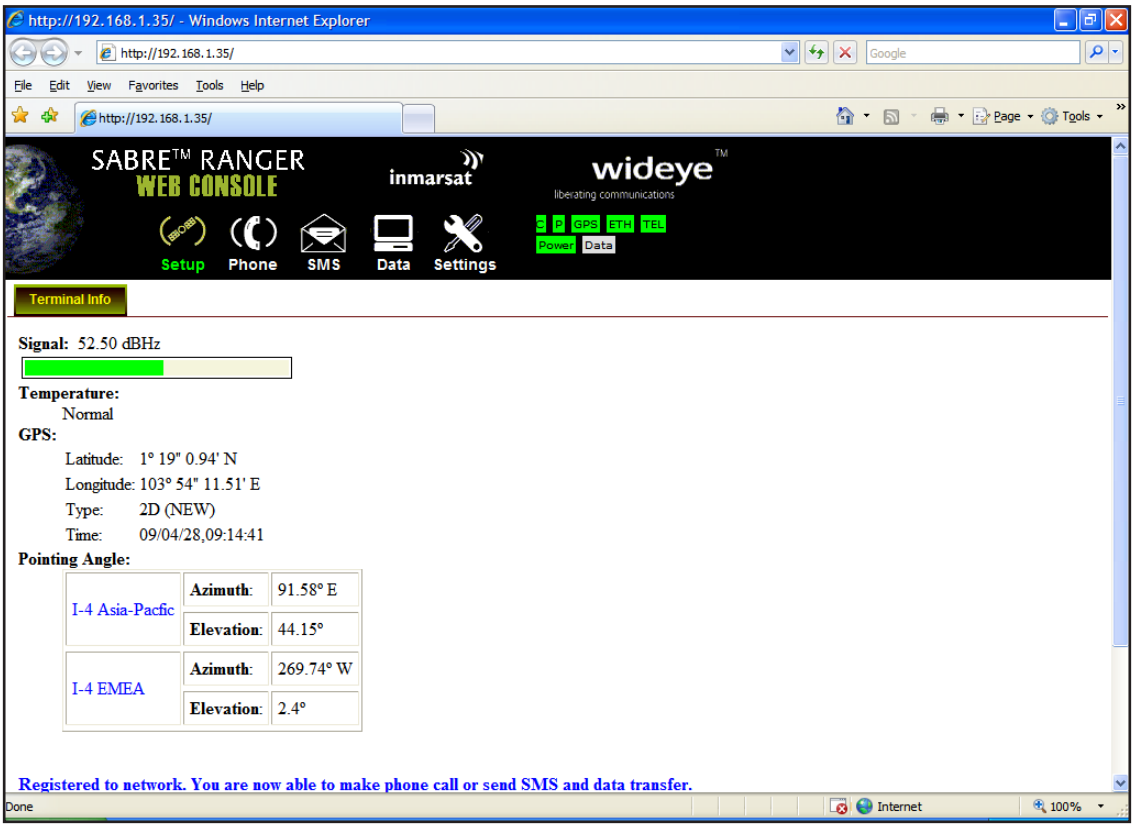
5. Secure the mounting after obtaining maximum signal strength.

   Note:
   For any service to commence, minimum 45dBHz signal strength is required.

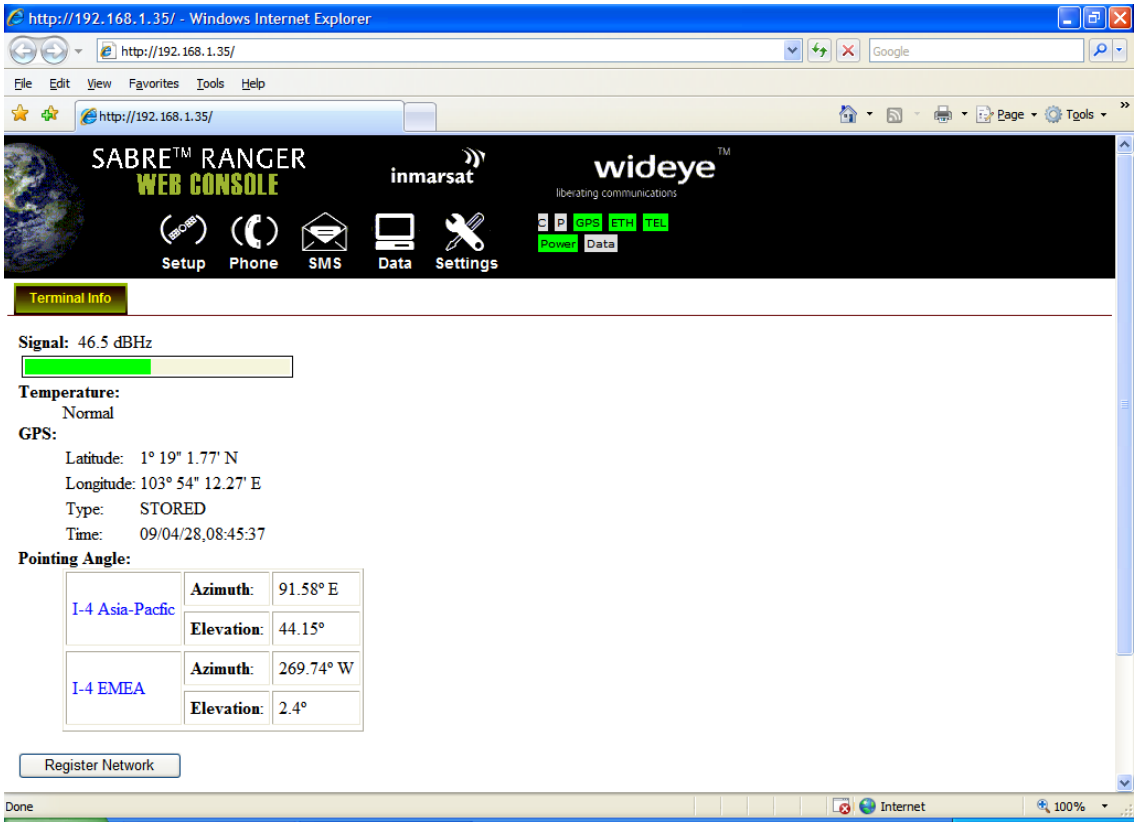
6. Click Register Network to register to the BGAN network.

   Once network registration is completed, the Registered to network. You are now able to make phone call or send SMS and data transfer message is displayed.

   Note:
   The GPS co-ordinates will not be displayed until you click Register Network to register to Inmarsat's BGAN network. The GPS display prohibited message will be displayed if the GPS coordinates are prohibited by the BGAN network.

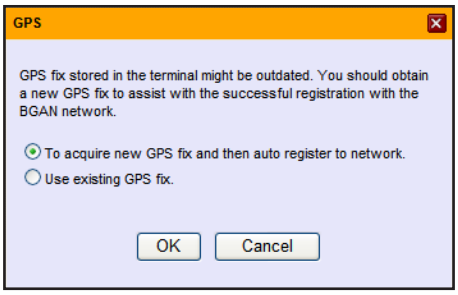


When you power up the SABRE™ Ranger terminal the next time, the previous acquired GPS co-ordinates will be displayed.



When you click Register Network you will be prompted to:

- To acquire new GPS fix and then auto register to network
- Use existing GPS fix


GPS
GPS fix stored in the terminal might be outdated. You should obtain a new GPS fix to assist with the successful registration with the BGAN network.
To acquire new GPS fix and then auto register to network.
Use existing GPS fix.
OK
Cancel

Note:
It is recommended to register to the BGAN network after acquiring new GPS co-ordinates before powering down the terminal. This will ensure the GPS co-ordinates are stored in the terminal's memory.

Menu Overview

Setup	Phone	SMS	Data	Settings
Terminal Info	Dialler	Compose	Connection	Terminal Info
	Phonebook	Inbox	Primary Profile	Ethernet
	Call History	Sent	Secondary Profile	Bluetooth
	Emergency	Draft	Port Forwarding	Telephony
			Settings	PIN
				SMS
				Audio
				ATCmd
				Misc
				Support
				About

Status Indicators

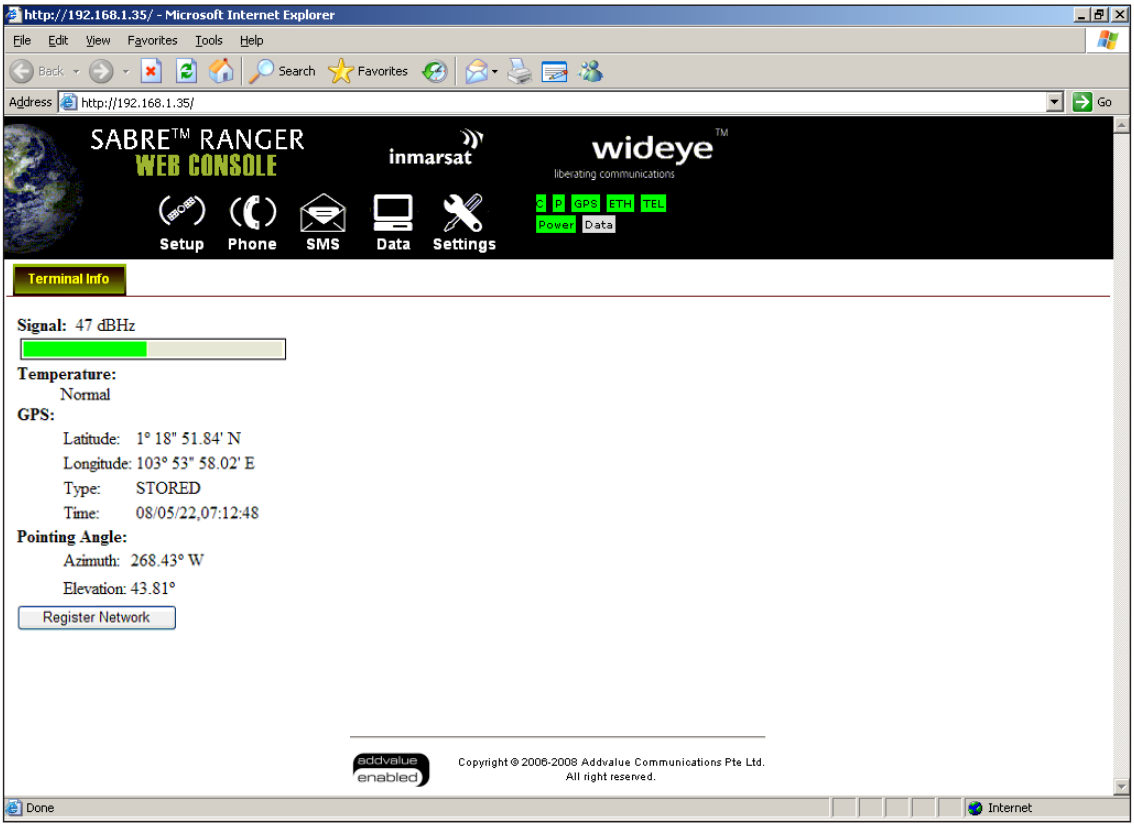
Green indicates the item is activated.
Grey indicates the item is not activated.

Viewing Terminal Information

Click

to view the SABRE™ Ranger terminal information.

The terminal information is displayed according to the Antenna Pointing mode (before registering to the Inmarsat BGAN network).



Signal	Indicates the signal strength during antenna pointing. (Adjust the antenna to ensure that the signal strength is at least 45dBHz.)
Temperature	Indicates the Terminal's current operating temperature.
GPS	Indicates the latitude, longitude, type and time of the GPS acquisition.
Pointing Angle	Indicates the azimuth and elevation angle, which the Terminal should be positioned.

Phone Menu

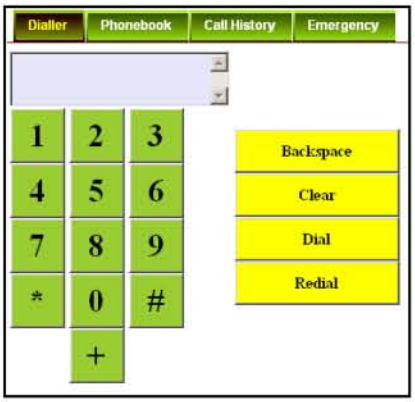
Click

to select the **Phone** menu.

Phone menu provide the following options:

Dialler	To make voice calls with the PSTN corded (analog) phone using the numeric keypad and to redial the last called phone number.
Phonebook	Allow you to view, add, edit and delete entries on your Phonebook list. You can make calls or send SMS directly from your Phonebook entries. The Phonebook entries can be stored on the SIM card or the SABRE™ Ranger terminal.
Call History	To check on the history log of calls made and received.
Emergency	Making emergency calls from the listed emergency call numbers.

Dialler



Note:
This SABRE™ Ranger terminal is not intended to be connected to any North American (U.S., Canada) TNV circuit or PSTN (Public Switch Telephone Network).

Ensure the analog (corded) phone is connected to the Multi-function cable Phone port before making a voice call.

To Make a Call

Follow these steps to make a call:

1. Using the numeric keypad, dial the other party's number using the following format:

   +<country code> <phone number>.

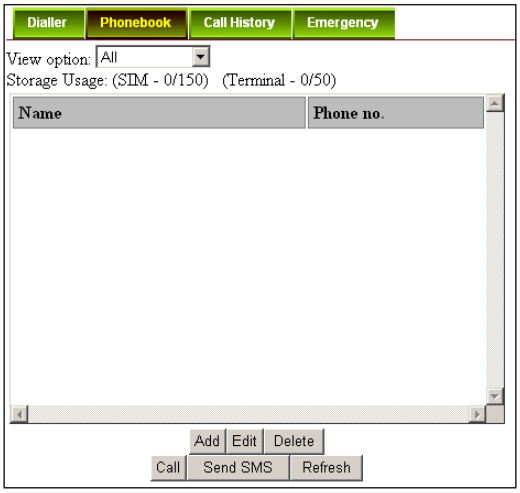
2. Press the **Offhook** button on the analog (corded) phone, and click **Dial**.

To End a Call

Follow these steps to end a call:

1. Press the **Onhook** button on the analog (corded) phone.
2. Press the **Offhook** button on the analog (corded) phone, and click **Dial**.
   - Click **Backspace** to delete the last entered number on the display.
   - Click **Clear** to delete the entered phone number.
   - Click **Redial** to dial the last called phone number.

Phonebook



- View option
  The View option allows you to view the Phonebook entries from the different storage locations.

  From the drop-down menu, select:

All	To view the entries stored in the SIM card and SABRE™ Ranger terminal.
SIM only	To view the entries stored in the SIM card.
Terminal only	To view the entries stored in the SABRE™ Ranger terminal.

- Storage Usage
  Shows the number for Phonebook entries used in the SIM card and Terminal locations.

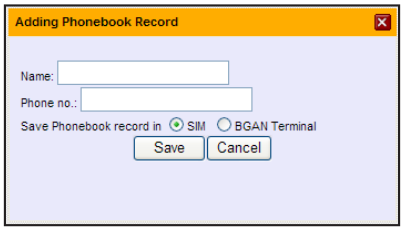
  For example: (SIM – 5/150) indicates:

  Storage location – SIM card
  Total number of entries used = 5
  Total number of entries available = 150

To Add a New Phonebook Entry

Follow these steps to add a new Phonebook entry:

1. Click Add.
2. Enter the Name and Phone number.
3. Select the storage location and click Save.



To Edit A Phonebook Entry

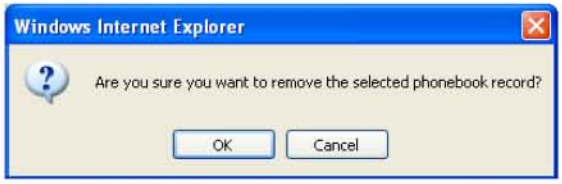
Follow these steps to edit a Phonebook entry:

1. Select the entry from the Phonebook list.
2. Click **Edit**.
3. Proceed to change the Name and/or Phone number.
4. Click **Apply**.

To Delete a Phonebook Entry

Follow these steps to delete a Phonebook entry:

1. Select the entry from the Phonebook list.
2. Click **Delete**.
3. Click **OK** to confirm to delete the entry. Click **Cancel** to abort delete.



To Make a Call from a Phonebook Entry

Follow these steps to make a call from a Phonebook:

1. Select the entry from the Phonebook list.
2. Click **Call**.
   The Phonebook console switches over to the Dialler console.

   Note:
   Ensure the analog (corded) phone is connected to the Multi-function cable Phone port before making a voice call.
3. Press the **Offhook** button on the analog (corded) phone.
4. From the Dialler console, click **Dial**.

To Send SMS to a Phonebook Entry

Follow these steps to send an SMS to a Phonebook entry:

1. Select the entry from the Phonebook list.
2. Click **Send SMS**.
   The Phonebook console switches over to the Compose SMS console.
3. Type in the text message and click **Send**.

- Click **Refresh** to refresh the Phonebook list.

Call History

- **View option**
  The View option allows you to view the Phonebook entries from the different storage locations.

  From the drop-down menu, select:

All	To view the list of the dialled, received and missed calls.
Dialled Call	To view the list of dialled calls only.
Received Call	To view the list of received calls.
Missed Call	To view the list of missed calls.

To Make a Call from the Call History list

Follow these steps to make a call to a Call History list:

1. Select the entry from the list.
2. Click **Call.**
   The Call History console switches over to the Dialler console.

   Note:
   Ensure the analog (corded) phone is connected to the Multi-function cable Phone port before making a voice call.
3. Press the **Offhook** button on the analog (corded) phone.
4. From the Dialler console, click **Dial.**

To Send SMS from the Call History list

Follow these steps to send SMS to a Call History list:

1. Select the entry from the list.
2. Click **Send SMS.**
   The Call History console switches over to the Compose SMS console.
3. Type in the text message and click **Send.**

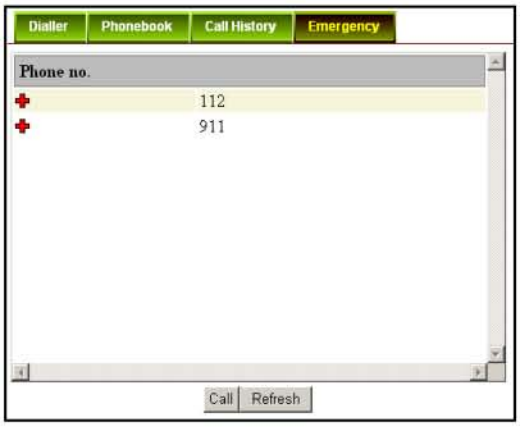
To Delete a Call History List Entry

Follow these steps to delete a Call History entry:

1. Select the entry from the Call History list.
2. Click **Delete**.
3. Click **OK** to confirm or click **Cancel** to abort deleting the entry.

- Click **Refresh** to refresh the Call History list.

Emergency



To Make an Emergency Call

Follow these steps to make an Emergency call:

1. Select the number from the list.
2. Click **Call**.
   The Emergency console switches over to the Dialler console.

   Note:
   Ensure the analog (corded) phone is connected to the Multi-function cable Phone port before making a voice call.
3. Press the **Offhook** button on the analog (corded) phone.
4. From the Dialler console, click **Dial**.

- Click **Refresh** to refresh the Emergency list.

SMS Menu

Click

to to select the **SMS** menu.

SMS menu provide the following options:

Compose	To compose and send text messages. Simply enter a mobile number, type your message and click Send.
Inbox	Shows the details (Sender information, Message, Date and Time stamp) of all SMS received.
Sent	Shows the details (Receiver information, Message, Date and Time stamp) of all SMS send.
Draft	Stores unsent messages for retrieval later.

Compose

To Compose a New SMS

Follow these steps to compose a new SMS:

1. Enter the receiver's phone number in the Phone no. field or click the Phonebook icon if the receiver's number is listed in the Phonebook.
2. Type the message in the text editor box.

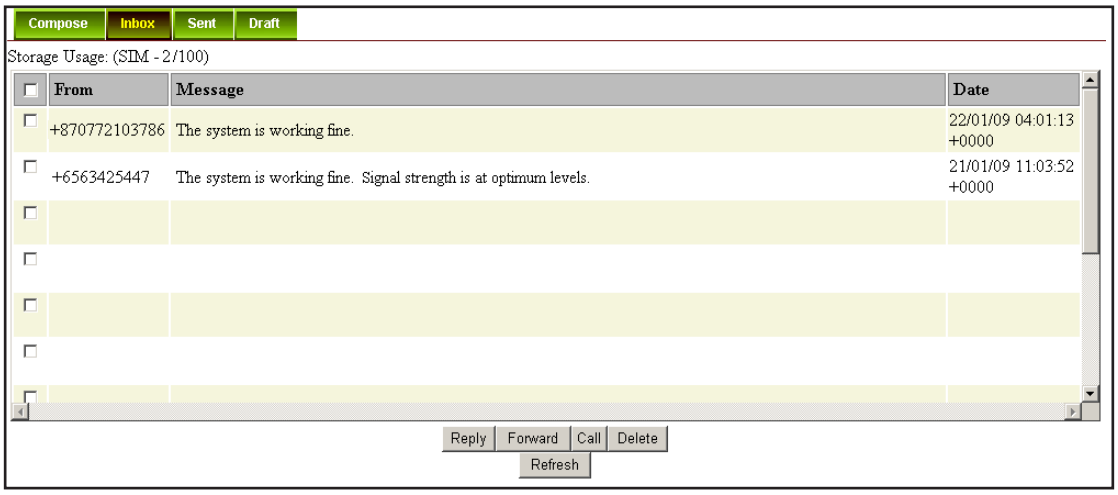
   Note:
   The SABRE™ Ranger terminal supports unicode SMS.
   Message is limited to 608 characters including spacing between words. This is equivalent to 4 messages.

   Uncheck **Store a copy in SIM** checkbox if you do not wish to store a sent SMS into SIM card.
3. Click **Send** to send the SMS.

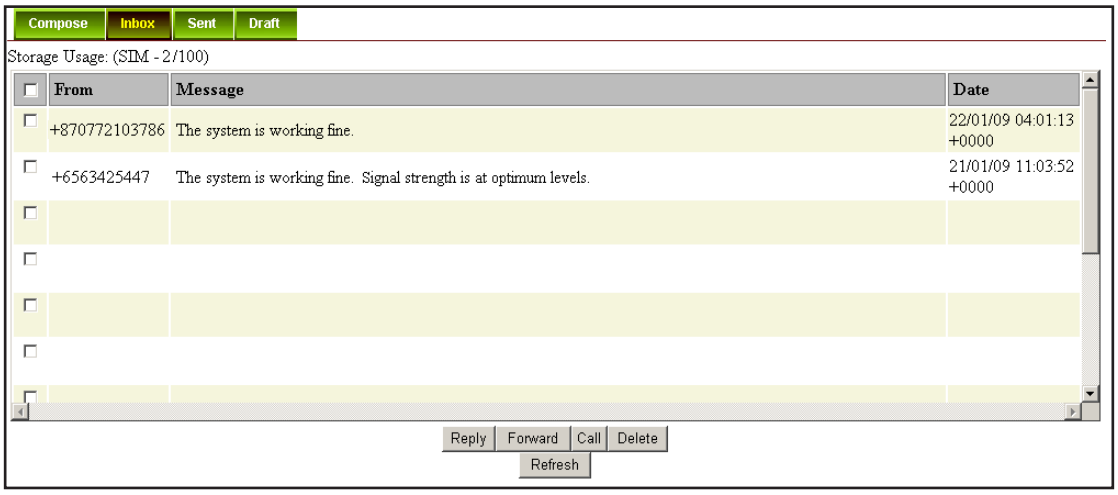
- To save an unsent SMS, click **Save** and the unsent SMS will be saved in **Draft.**
- To clear the typed message on the text editor, click **Clear.**

Inbox

Shows the details (Sender information, Message, Date and Time stamp) of all SMS received.



To Reply a SMS



Follow these steps to reply a SMS:

1. Click on a SMS to select it.
   The selected SMS will be highlighted in light blue.

2. Click Reply.

3. Click OK to reply with the original contents or Cancel to reply without the original content.
   The Inbox console switches over to the Compose console.

4. Enter your reply in the text editor.

5. Click Send to send your reply SMS.

To Forward a SMS

Follow these steps to forward a SMS:

1. Click on a SMS to select it.
   The selected SMS will be highlighted in light blue.

2. Click **Forward.**
   The Inbox console switches over to the Compose console.

3. Enter the receiver's number in the **Phone No.** field.

4. Click **Send** to forward the SMS.

To Make a Call to the SMS Sender

Follow these steps to make a call to the SMS sender:

1. Click on a SMS to select it.
   The selected SMS will be highlighted in light blue.

2. Click **Call.**
   The Inbox console switches over to the Dialler console.

   Note:
   Ensure the analog (corded) phone is connected to the Multi-function cable Phone port before making a voice call.

3. Press the **Offhook** button on the analog (corded) phone, and click **Dial.**

To Delete a Single SMS from the Inbox List

Follow these steps to delete a single SMS from the Inbox list:

1. Click on a SMS to select it.
   The selected SMS will be highlighted in light blue.

2. Click **Delete.**

3. Click **OK** to confirm or click **Cancel** to abort deleting the SMS.

To Delete Multiple SMS from the Inbox List

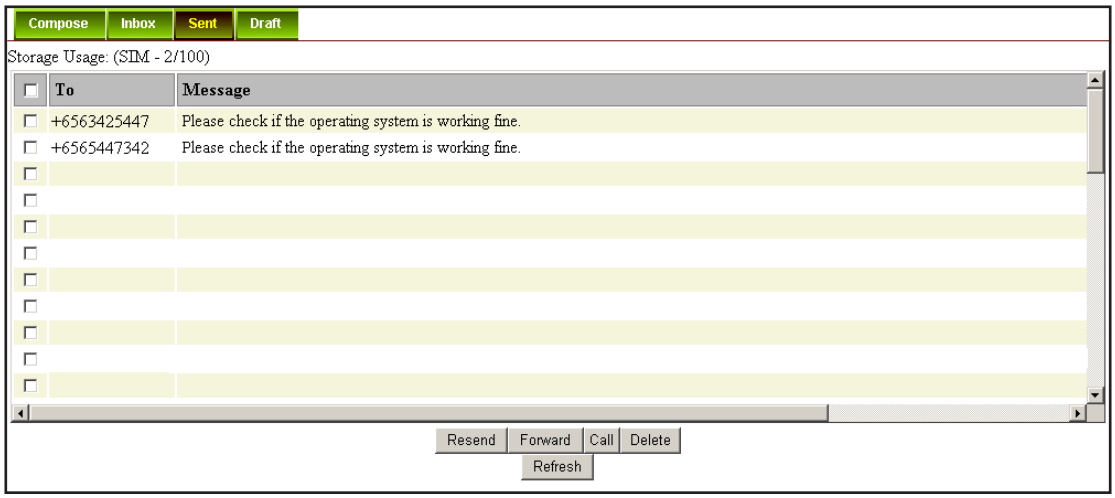
Follow these steps to delete multiple SMS from the Inbox list:

1. Select the message by checking the checkboxes beside each SMS.

2. Click **OK** to confirm the delete, or **Cancel** to abort the delete.

- Click **Refresh** to refresh the **Inbox** list.

Sent
Shows the details (Receiver information, Message, Date and Time stamp) of all SMS sent.



To Resend a Sent SMS

Follow these steps to resend a sent SMS (sending the same SMS to the same receiver):

1. Click on a SMS to select it.
   The selected SMS will be highlighted in light blue.

2. Click Resend.
   The SMS will be sent to the receiver immediately.

To Forward a Sent SMS

Follow these steps to forward a sent SMS to another recipient:

1. Click on a SMS to select it.
   The selected SMS will be highlighted in light blue.

2. Click Forward.
   The Sent console switches over to the Compose console.

3. Enter the receiver's number in the Phone No. field.

4. Click Send.
   The SMS will be sent to the receiver immediately.

To Make a Call to the SMS Sender

Follow these steps to make a call to the SMS sender:

1. Click on a SMS to select it.
   The selected SMS will be highlighted in light blue.

2. Click Call.
   The Sent console switches over to the Dialler console.

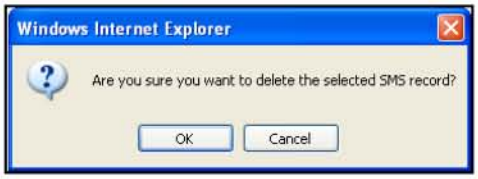
   Note:
   Ensure the analog (corded) phone is connected to the Multi-function cable Phone port before making a voice call.

3. Press the Offhook button on the analog (corded) phone, and click Dial.

To Delete a Single SMS from the Sent List

Follow these steps to delete a single SMS from the Sent list:

1. Click on a SMS to select it.
   The selected SMS will be highlighted in light blue.
2. Click **Delete**.
3. Click **OK** to confirm or click **Cancel** to abort deleting the SMS.



To Delete Multiple SMS from the Sent List

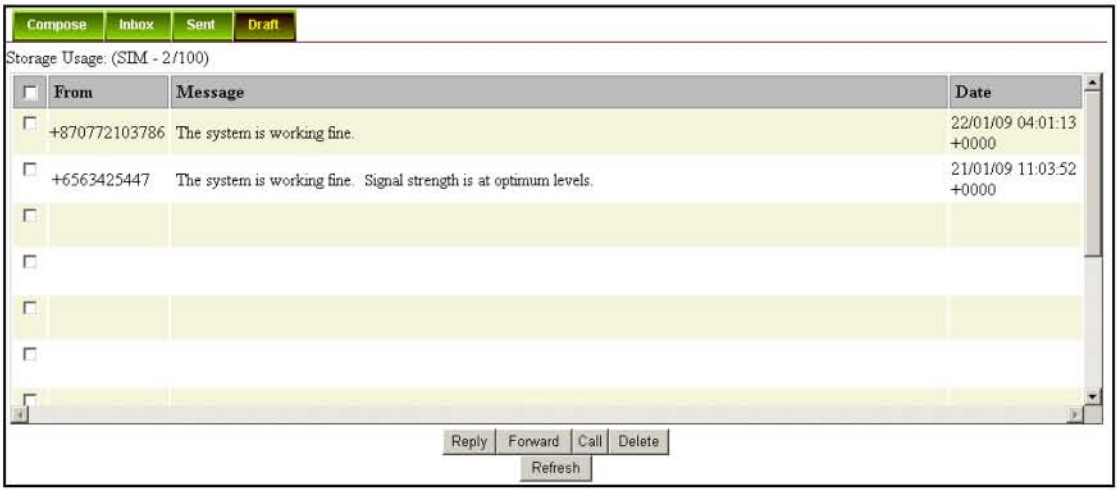
Follow these steps to delete multiple SMS from the Sent list:

1. Select the message by checking the checkboxes beside each SMS.
2. Click **OK** to confirm the delete, or **Cancel** to abort the delete.

- Click **Refresh** to refresh the Sent list.

Draft

Stores SMS saved from the Compose console.

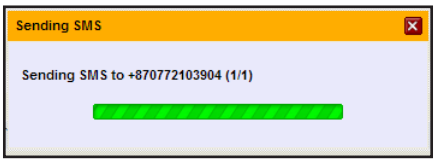


To Send a Draft SMS

Follow these steps to send a draft SMS:

1. Click on a SMS to select it.
   The selected SMS will be highlighted in light blue.

2. Click Send.
   The SMS will be sent to the receiver immediately.



To Forward a Draft SMS to Another Recipient

Follow these steps to forward a draft SMS to another recipient:

1. Click on a SMS to select it.
   The selected SMS will be highlighted in light blue.

2. Click Forward.
   The Draft console switches over to the Compose console.

3. Enter the receiver's number in the Phone No. field.

4. Click Send to forward the SMS.

To Make a Call to the SMS Receiver

Follow these steps to make a call to the SMS receiver:

1. Click on a SMS to select it.
   The selected SMS will be highlighted in light blue.

2. Click Call.
   The Draft console switches over to the Dialler console.

   Note:
   Ensure the analog (corded) phone is connected to the Multi-function cable Phone port before making a voice call.

3. Press the Offhook button on the analog (corded) phone, and click Dial.

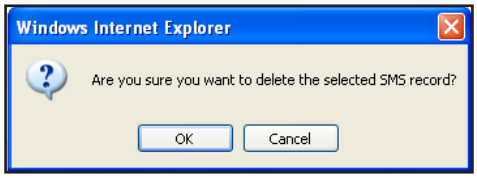
To Delete a SMS from the Draft Lisr

Follow these steps to delete a SMS from the Draft list:

1. Click on a SMS to select it.
   The selected SMS will be highlighted in light blue.

2. Click Delete.

3. Click OK to confirm or click Cancel to abort deleting the SMS.



To Delete Multiple SMS from the Draft List

Follow these steps to delete multiple SMS from the Draft list:

1. Select the message by checking the checkboxes beside each SMS.
2. Click **OK** to confirm the delete, or **Cancel** to abort the delete.

- Click **Refresh** to refresh the Draft list.

Data Menu

Click

to select the **Data** menu.

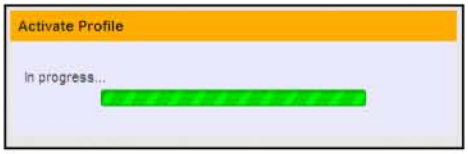
Data menu provide the following options:

- Connection
- Primary Profiles
- Secondary Profiles
- Port Forwarding
- Settings

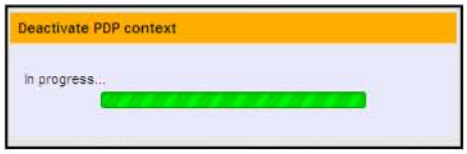
Connection

To activate the default profile, click **Activate Default Profile.**
The PDP context will be activated.

When connected, **APN** and **IP Address** details will be displayed.
You can proceed to use the Internet features.



To disconnect the data connection, click **Disconnect.**
The PDP context will be deactivated.



Primary Profiles

Primary profiles define the connection type. You can select from a list of profiles to be the default primary profile and connection type. You can customized all the 10 primary profiles available on the list.

Note:
The Standard profile is set as the default primary profile and the default connection type is standard (this is charged by the volume [in kilobytes] of data used).

- **Profile Name**
  Change the profile name as desired.

- **Connection Type**
  Select the connection type to be used during the connection:

  Standard – Charged by the volume (in kilobytes) of data used.

  Streaming – Charged by the time (per minute) used during the connection.

- **Access Point Name (APN)**
  By default, the APN from the SIM will be selected.

  Follow these steps to change the **Access Point Name (APN)**:

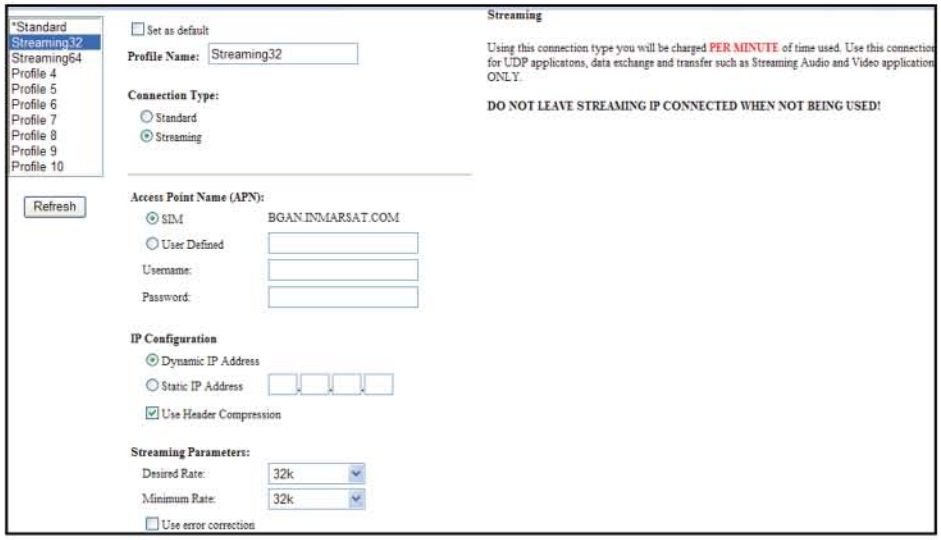
  1. Select **User Defined**.
  2. Enter the new APN in the field space provided.
  3. Enter the username and password if required.

- **IP Configuration**
  By default, the **Dynamic IP Address** is selected.

  Follow these steps to use **Static IP Address**:

  1. Select **Static IP Address** and enter the IP Address in the space provided.
  2. Check the **Header Compression** checkbox if it is required to use Header Compression.

- **Settings For Streaming Connection**



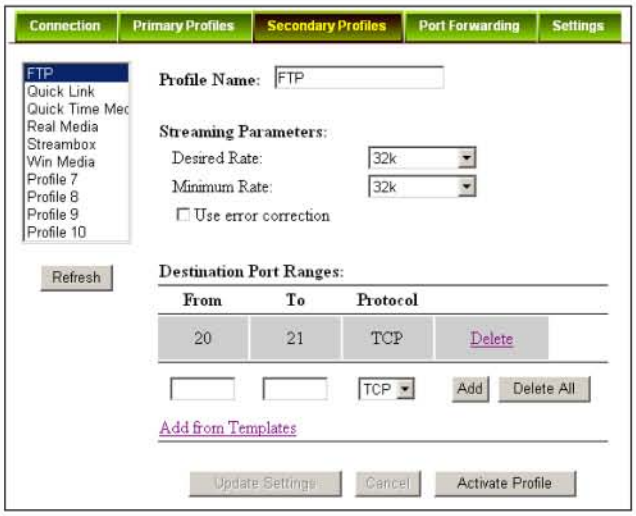
Follow these steps to set **Streaming Parameters:**

1. Select the Desired Rate: 32k or 64k
2. Select the Minimum Rate: 32k or 64k
3. Check the **Error Correction** checkbox if it is required to use Error Correction.

- Click Update Settings when all updates on the profile settings are done.
- Click Activate Profile to activate the selected profile.

Secondary Profiles

Secondary Profiles setting is used mainly for Streaming connection. You can select from a list of secondary profiles to be used during streaming connection. You can customized all the 10 secondary profiles available on the list.



- **Profile Name**
  You may change the profile name from the text box.

- **Streaming Parameters**
  Follow these steps to set the Streaming Parameters:

  1. Select the **Desired Rate**: 32k or 64k.
  2. Select the **Minimum Rate**: 32k or 64k.
  3. Check the **Error Correction** checkbox if it is required to use Error Correction.

- **Destination Port Ranges**
  Default destination port ranges and protocol type for each profile are listed.

  Follow these steps to add a new destination port range:

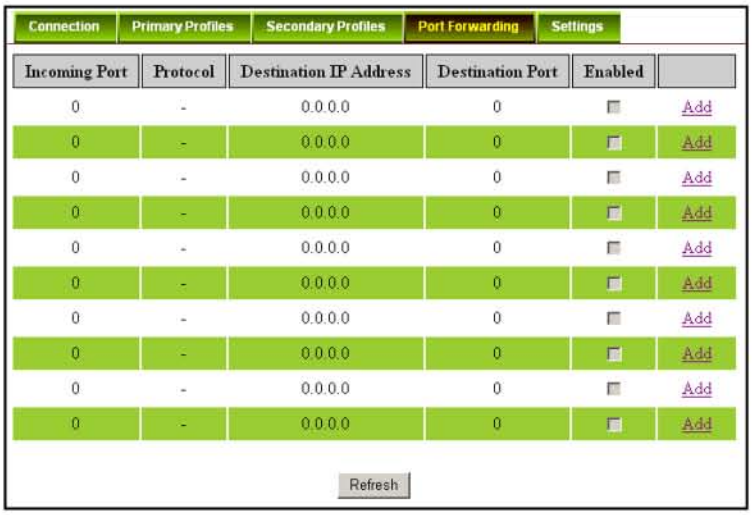
  1. Enter the port range in the space provided and choose TCP or UDP as the protocol type; or click Add from Templates to select the port ranges from other profiles.

     Note:
     To determine the port number for the type of service you wish to use, you may search them from the Internet. An example of port numbers: for Real Audio and Video streaming, you may use Port 554, 7070 and 7071 for protocol type TCP or Port 6770 to 7070 for protocol type UDP.

  - Click **Update Settings** when all updates on the profile settings are done.
  - Click **Activate Profile** to activate the selected profile.

Port Forwarding

Port Forwarding is a feature for Router (multiple-user) mode. This feature sets the SABRE™ Ranger terminal to direct incoming traffic on certain TCP/UDP port to a specific port on a local PC (IP Address).



Follow these steps to add a new forwarding rule:

1. Click **Add.**
2. Enter the **Incoming Port** number in the space provided.
   (For example: the user expecting HTTP, the port is 80).
3. Enter the **Destination IP Address.**
   (For example: the IP Address of the PC that is connected to the SABRE™ Ranger terminal).
4. Select the **Protocol** type:
   - **TCP** (for HTTP, it will be TCP)
   - **UDP**
5. Enter the **Destination Port** number in the space provided.
   [For example: listening port of the particular service (TCP port 80 for web server) on the PC that is connected to the SABRE™™ Ranger terminal].
6. Click **Apply** to allow the settings to take effect.

Settings
You can select the Ethernet mode to be used for data connection.

Follow these steps to select the Ethernet mode:

1. Select the mode to be used during the data connection.
2. Check the **Auto PDP Context Activation** checkbox if it is required to use Auto PDP Context Activation.

- Click **Update** to allow the selection to take effect.
- Click **Refresh** to query the current mode.

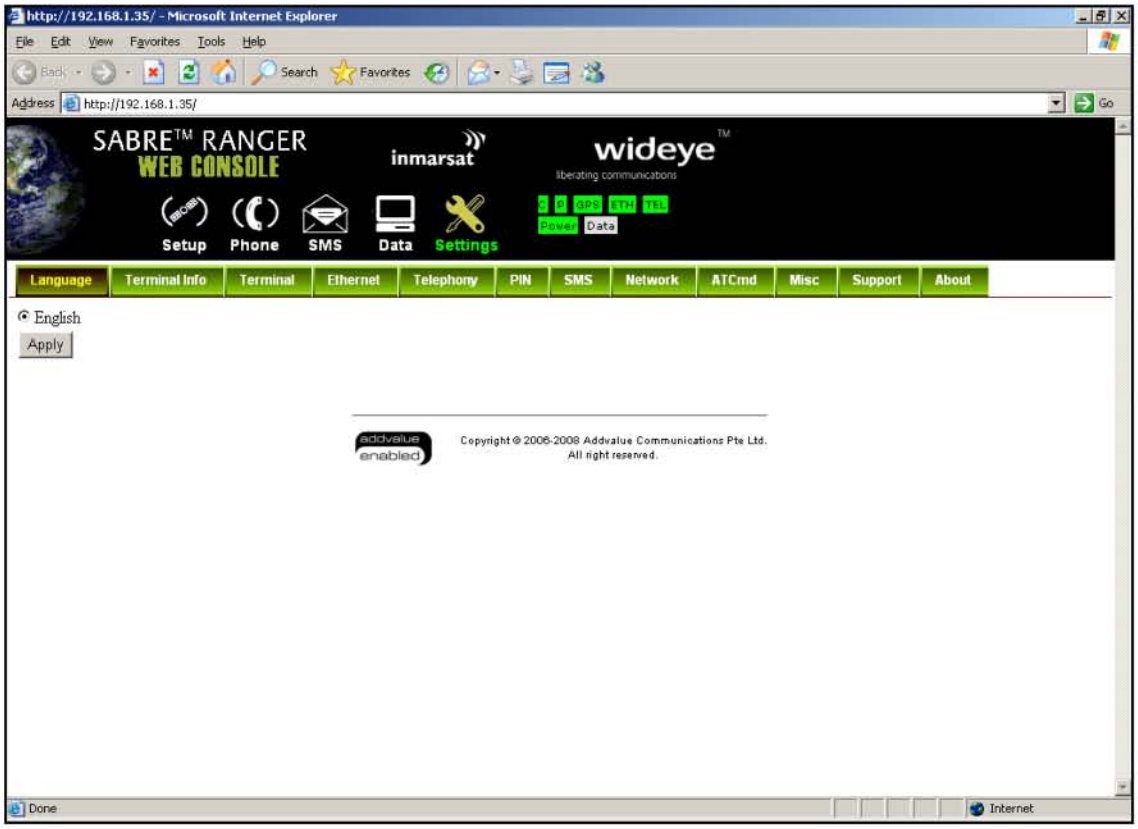
Settings Menu

Click

to select the Data menu.

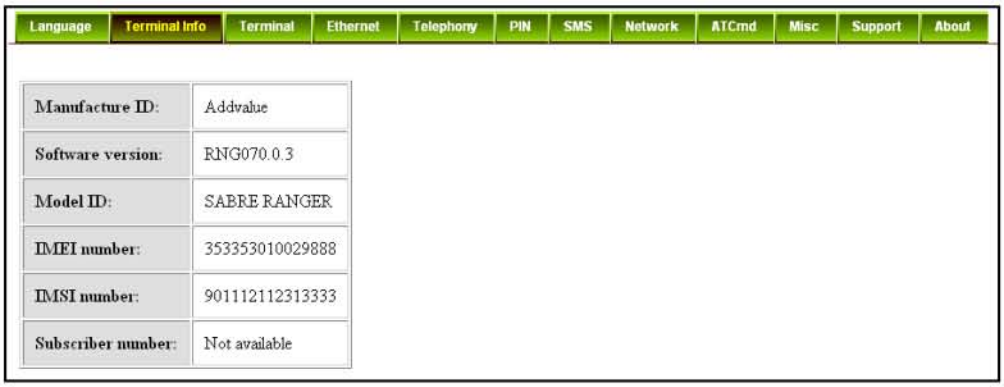
Click the following tabs to view and edit the configuration settings for the SABRE™ Ranger terminal.:

- Language
- Terminal Info
- Terminal
- Ethernet
- Telephony
- PIN
- SMS
- Audio
- ATCmd
- Misc
- Support
- About



Terminal Info

Displays information about the Manufacture ID, Software version, Model ID, IMEI number, IMSI number (only when a SIM card is inserted) and Subscriber number.



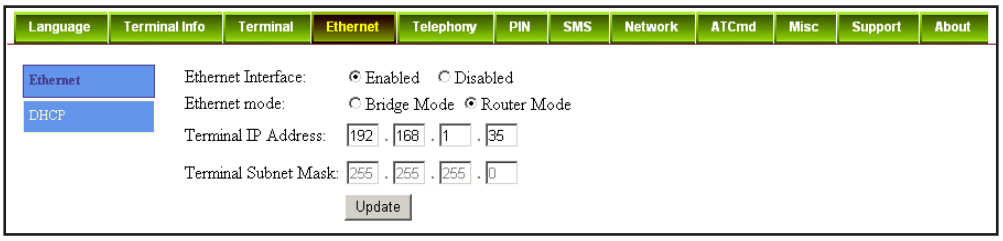
Terminal

Select Auto or Manual to power up the SABRE™ Ranger terminal when power is supplied via the AC/DC power adaptor.

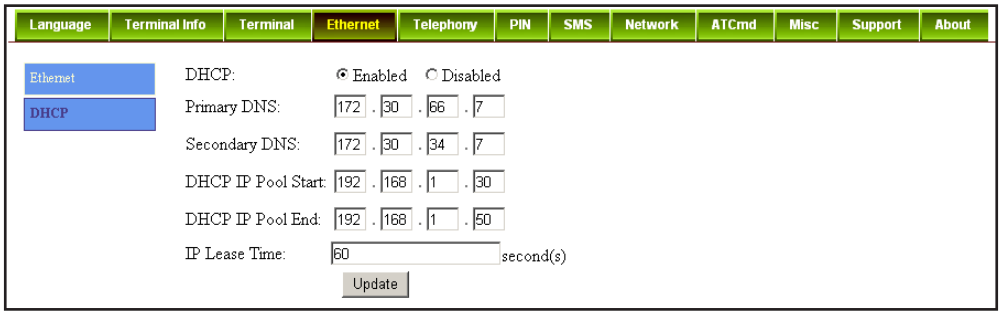
- Auto Power On: SABRE™ Ranger terminal will automatically power up when power is supplied via the AC/DC power adaptor.
- Manual Power On: You will need to press the On/Off button on the SABRE™ Ranger terminal when power is supplied via the AC/DC power adaptor.

Ethernet

- Click Ethernet to view and edit the Ethernet settings.
- Click Update to allow the settings to take effect.



- Click DHCP to view and edit the DHCP settings.
- Click Update to allow the settings to take effect.



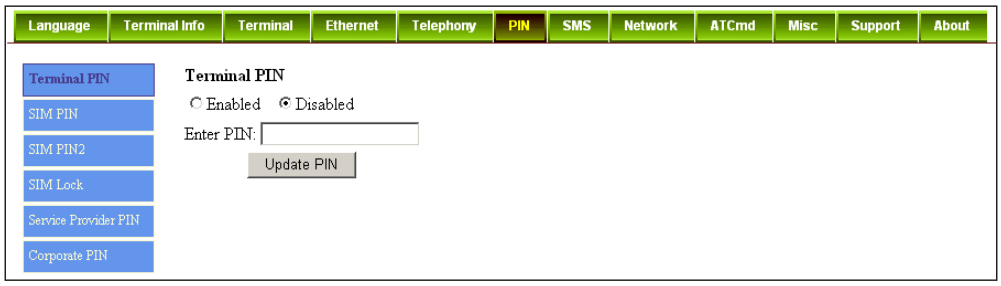
Telephony

- Select Enabled to use the Telephone Interface.
- Select Disabled if you do not need to use the Telephone Interface.

- Select European Caller Line ID Phone Connected or US Caller Line ID Phone Connected from the Telephone Interface Configuration drop-down menu.
- Click Update to allow the settings to take effect.

PIN

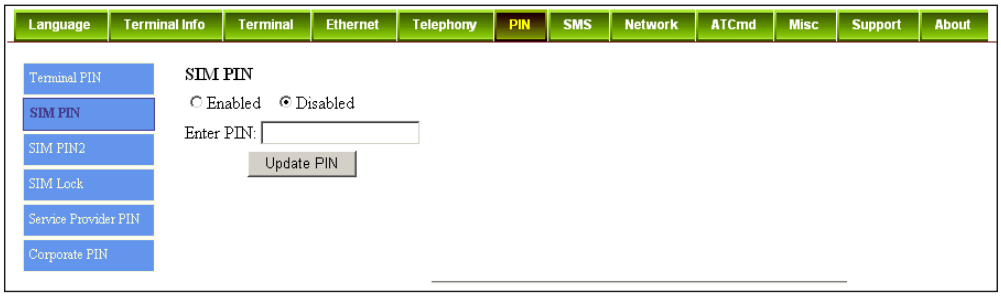
- Terminal PIN
  - Click Terminal PIN to configure the Terminal PIN settings.
  - Select Disabled if you do not need to set the Terminal PIN.



  - Select Enabled to set the terminal PIN.
  - Enter the PIN number in the Enter PIN field and click Update PIN.

SIM PIN

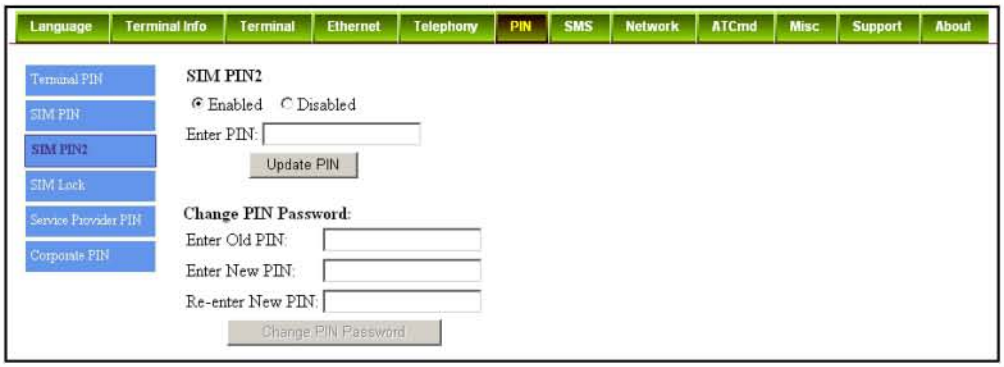
- Click SIM PIN to configure the SIM PIN settings.
- Select Disabled if you do not need to set the SIM PIN.



- Select Enabled to set the SIM PIN.
- Enter the PIN number in the space provided and click Update PIN.

SIM PIN2

- Click SIM PIN2 to configure the SIM PIN2 settings.
- Select Disabled if you do not need to set the SIM PIN2.
- Select Enabled to set the SIM PIN2.
  Enter the PIN number in the space provided and click Update PIN.

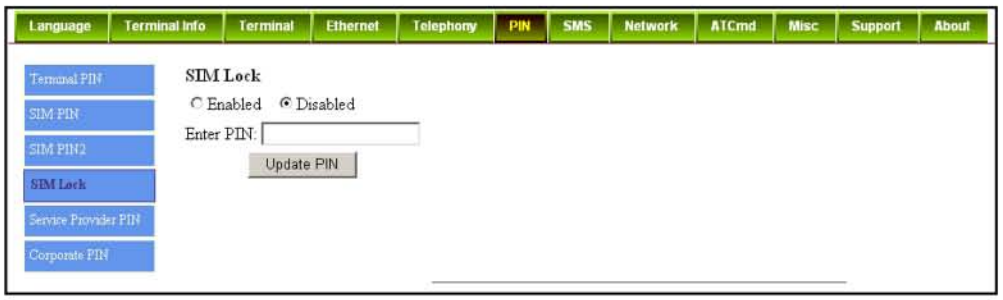


To change the PIN Password:

1. Enter the old PIN number in the **Enter Old PIN** field.
2. Enter the new PIN number in the **Enter New PIN** field.
3. Re-enter the new PIN number in the **Re-enter New PIN** field.
4. Click **Change PIN Password.**
   The Terminal PIN is now changed.

SIM Lock

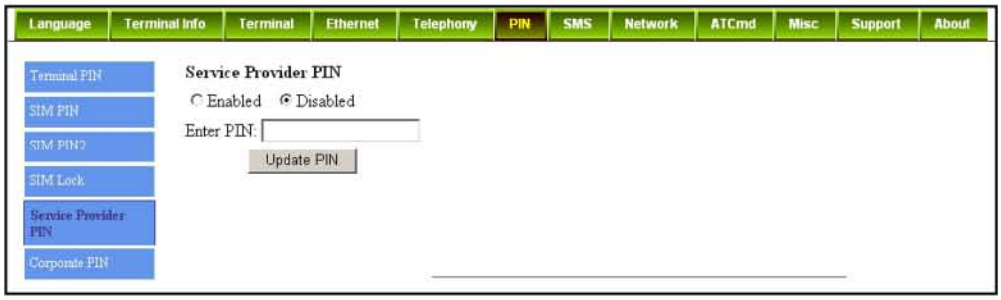
- Click **SIM Lock** to configure the SIM Lock settings.



- Select **Disabled** if you do not need to set the SIM Lock.
- Select **Enabled** to set the SIM Lock.
- Enter the PIN number in the space provided and click **Update PIN.**

Service Provider PIN

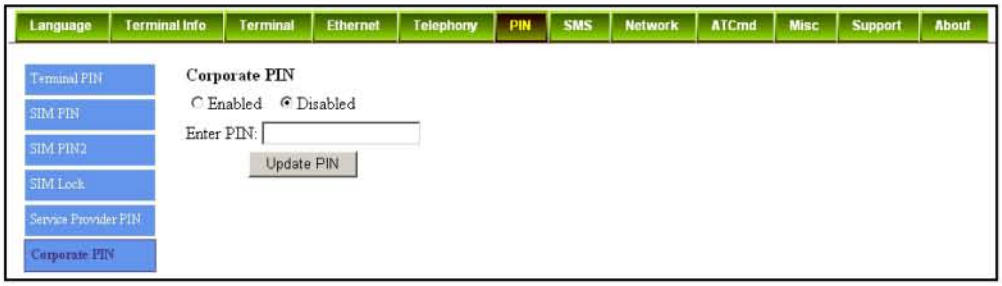
- Click **Service Provider PIN** to configure the Service Provider PIN settings.



- Select **Disabled** if you do not need to set the Service Provider PIN.
- Select **Enabled** to set the Service Provider PIN.
- Enter the PIN number in the space provided and click **Update PIN.**

Corporate PIN

- Click **Corporate PIN** to configure the Corporate PIN settings.



- Select **Disabled** if you do not need to set the Corporate PIN.
- Select **Enabled** to set the Corporate PIN.
- Enter the PIN number in the space provided and click **Update PIN.**

SMS

To change the **SMS service Centre Address** number, enter the new number in the space provided and click **Update.**

Network

Select **Auto** or **Manual** for Network registration when SABRE™ Ranger terminal is powered up.

- **Auto:** SABRE™ Ranger terminal will automatically register to the network when it is powered up.
- **Manual:** You will need to click **Network Registration** on the **Setup** page to register to the network.
- Click **Update Settings** after you have made your selection.

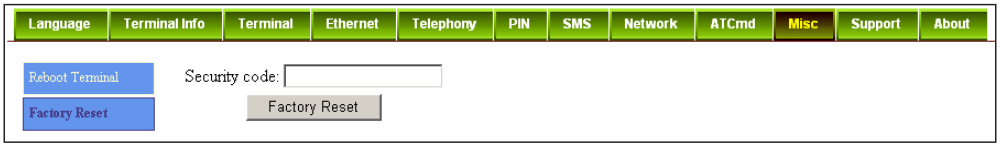
ATCmd

- Enter the AT Commands in the text editor.
- Click **Send** to register the AT Commands.
- To remove the commands from the text editor, click **Clear**.

Misc

Click **Reboot** to reboot the SABRE™ Ranger terminal.

- To perform a Factory Reset, enter the Security code **0000** and click **Factory Reset.**
- The settings of the SABRE™ Ranger terminal will be reset to the default settings.

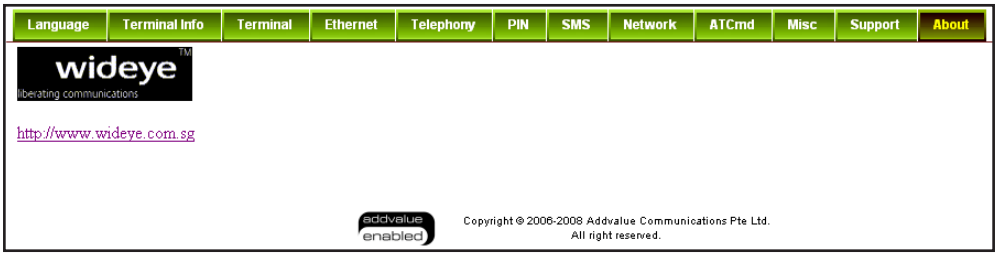


Support

Display information of the support telephone number, support email address, Support URL and Services URL. (The information shown are for sample purpose only.)

About

Displays the wideye web address and copyright information.

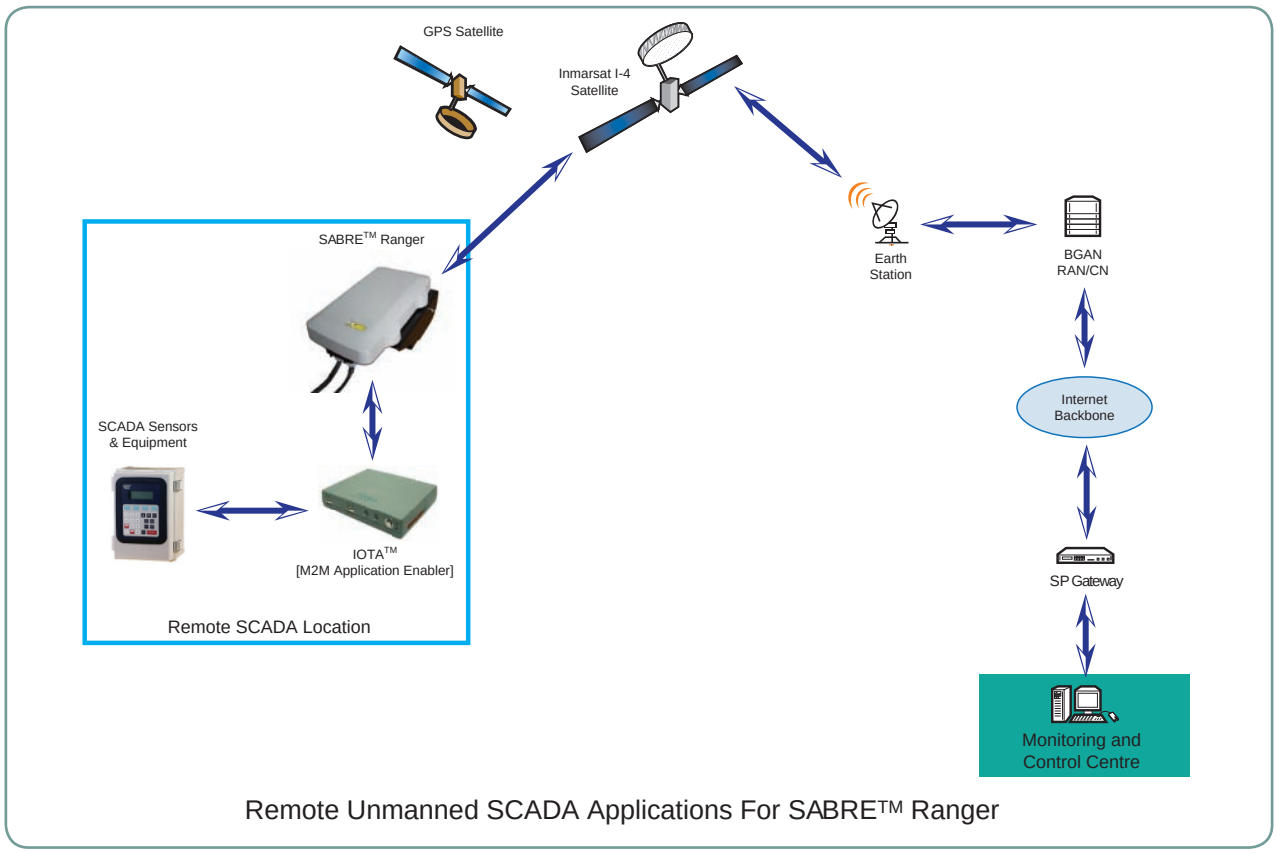


Using SABRE™ Ranger for Remote Unmanned SCADA Applications

Connecting to a M2M Application Enabler

The illustration below depicts a generic SCADA application setup involving the SABRE™ Ranger. In a remote unmanned SCADA application, the SABRE™ Ranger will be connected to a machine to machine (M2M) device. The Addvalue's Wideye IOTA™ is one such device that can be used in conjunction with the SABRE™ Ranger for SCADA applications. Clients may incorporate their M2M device with the SABRE™ Ranger. The M2M device would be controlling some equipment, for example sensors or controllers and be periodically collecting data. When the data needs to be transferred to the monitoring and control centre, it will then be sent via the SABRE™ Ranger.

As BGAN is a dual channel network providing Circuit Switch (CS) for voice and Packet Switch (PS) for IP network data, upon registering to the BGAN network, CS is available by default. However, PS is not connected unless activated by M2M device or by user via web console. As each PS connection comes with a minimum charge, it should be activated where necessary to save cost. The SABRE™ Ranger offers another option of activating the PS connection and it is via SMS. The sms commands to activate the SABRE™ Ranger's PS connection to the BGAN network is provided in this section.



Remote Unmanned SCADA Applications For SABRE™ Ranger

Remote SMS IP Activation and Deactivation

Remote SMS Activation of IP Connection

To use Remote SMS Activation of IP Connection, use the CONNECT command with the following syntax:

SABRE,CONNECT,<APN>,<Username>,<Password>

For example:
SABRE, CONNECT, “bgan.inmarsat.com”, “SNGT125”, “bedru8huty”

Note:
If there is no username and password, then the syntax will be:

SABRE, CONNECT, “bgan.inmarsat.com”, “”, “”

Remote SMS De-activation of IP Connection

To use Remote SMS De-activation of IP Connection, use the DISCONNECT command with the following syntax:

SABRE,DISCONNECT

Note:
SMS activation/deactivation commands are case sensitive.
The activation/deactivation SMS will not be stored in the Inbox.

Troubleshooting

Problem	Probable Cause	Solution
SABRE™ RANGER terminal fails to turn on, or functions intermittently.	Multi-function cable not connected properly to the SABRE™ RANGER terminal.	Turn on SABRE™ RANGER terminal using the power from the mains via the power adapter.
	Power adapter output connector on the multi-function cable has come loose.	Check that the adapter output connector on the multi-function cable is properly connected.
	The power adapter (AC adapter) is not plugged in properly.	Check that the power adapter is plugged in properly.
	The power adapter (AC adapter) has no power from the AC outlet.	Move the AC cord to a different outlet, check for a line switch or tripped circuit breaker for the AC outlet.
	The power adapter (AC adapter) is faulty.	Try using a different power adapter.
SABRE™ RANGER terminal fails to obtain a GPS co-ordinates.	Extend GPS co-ordinates acquisition time. (Up to 10 minutes.)	Re-orientate the position and adjust the elevation of the SABRE™ RANGER terminal to the appropriate direction with a clear view to the open sky.
		If the SABRE™ RANGER terminal is placed at an obstructed open area, it is recommended to level the SABRE™ RANGER terminal horizontally with an unobstructed view of the sky.
SABRE™ RANGER terminal is unable to receive a signal or the signal that is received from the BGAN satellite is weak.	The SABRE™ RANGER terminal is not aligned in the direction of the BGAN satellite.	With the help of a compass and using Web Console, ensure that the SABRE™ RANGER terminal is pointing towards the direction of the BGAN satellite. Re-orientate the position and adjust the elevation of the SABRE™ RANGER terminal to receive maximum signal strength.
	Presence of obstructions between SABRE™ RANGER terminal and the BGAN satellite.	Ensure that there are no obstructions between SABRE™ RANGER terminal and the BGAN satellite.

Problem	Probable Cause	Solution
Unable to start firmware upgrade with the SABRE™ RANGER terminal.	The Ethernet cable has come loose.	Ensure the Ethernet cable is securely connected. Perform firmware upgrade after restarting the SABRE™ RANGER terminal.
Time out when transferring file to SABRE™ RANGER terminal during firmware upgrade.		
Fail to transfer file to the SABRE™ RANGER terminal during firmware upgrade.	Incorrect upgrade package/file is selected.	Ensure the correct upgrade package/file is selected. Perform firmware upgrade after restarting the SABRE™ RANGER terminal.
The SABRE™ RANGER terminal is registered to the network but fails to make any voice call or data connection.	The stored GPS co-ordinates is outdated if the SABRE™ RANGER terminal is not used for a few days or the GPS position is not matching with the current geographic location (this is true especially if the terminal was moved from one location to another location.	Turn on SABRE™ RANGER terminal and select New GPS to obtain new GPS co-ordinates. Point SABRE™ RANGER terminal to the appropriate direction with a clear view to the open sky.
		If the SABRE™ RANGER terminal is placed at an obstructed open area, it is recommended to level the SABRE™ RANGER terminal horizontally with an unobstructed view of the sky.

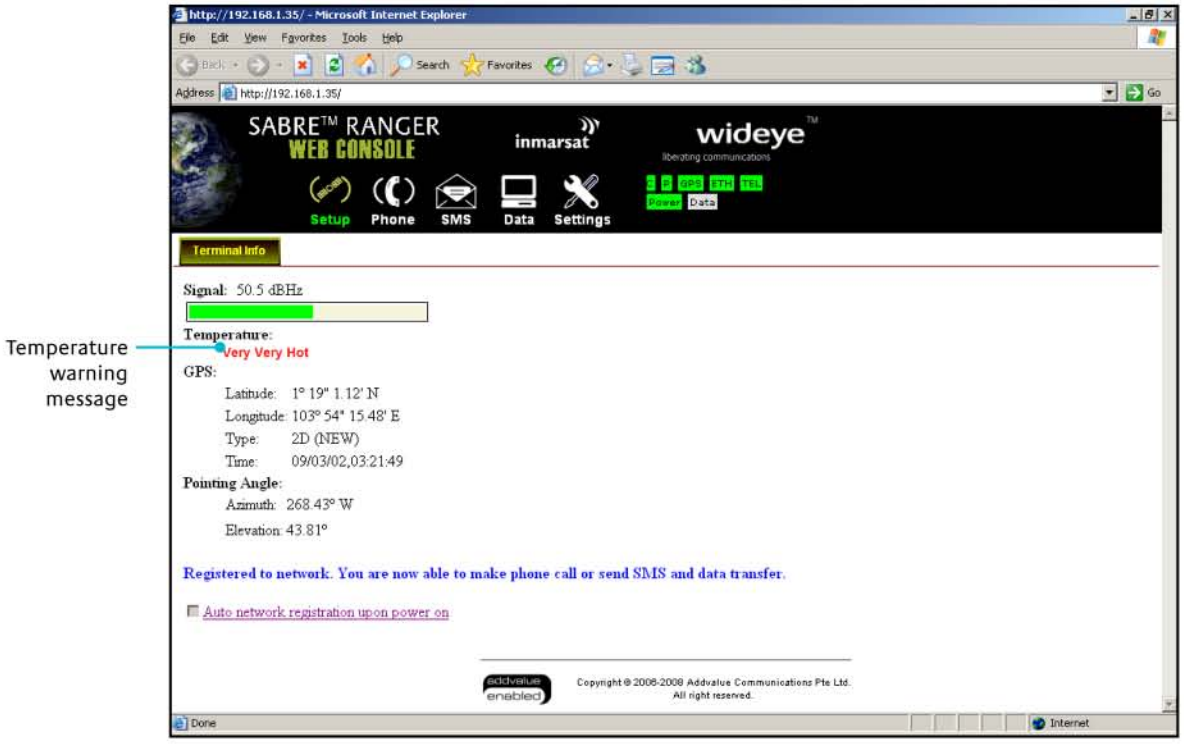
Temperature Warnings

The table below shows the response of SABRE™ Ranger to internal temperature transitions:

From	To	Temperature Warning Message	Action
Normal	Hot	**Hot** warning message is displayed.	No reduction of service.
	Cold		No action needed.
Hot	Very Hot	**Very Hot** warning message is displayed.	Block new call (excluding existing calls) and reduces the PS speed.
	Normal		No action needed.
Very Hot	Very Very Hot	**Very Very Hot** warning message is displayed.	Block all calls and reduces the PS speed.
	Hot	**Hot** warning message is displayed.	No reduction of service.
Very Very hot	Too Hot	**Too Hot** warning message is displayed.	Block all calls and reduces the PS speed.
	Very Hot	**Very Hot** warning message is displayed.	Block new call (excluding existing calls) and reduces the PS speed.

The table below lists the temperature range and definitions for SABRE™ Ranger:

Internal Terminal Temperature (T)	Temperature Range Definition
0 °C ≤ T < 70 °C	Normal
70 °C ≤ T < 80 °C	Hot
80 °C ≤ T < 85 °C	Very hot
85 °C ≤ T < 90 °C	Very very Hot
90 °C ≤ T	Too Hot



Error Messages

Numeric Text	Description
0	phone failure
1	no connection to phone
2	phoneadaptor link reserved
3	operation not allowed
4	operation not supported
5	PHSIM PIN required
6	PH-FSIM PIN required
7	PH-FSIM PUK required
10	SIM not inserted
11	SIM PIN required
12	SIM PUK required
13	SIM failure
14	SIM busy
15	SIM wrong
16	incorrect password
17	SIM PIN2 required
18	SIM PUK2 required
20	memory full
21	invalid index
22	not found
23	memory failure
24	text string too long
25	invalid characters in text string
26	dial string too long
27	invalid characters in dial string
30	no network service
31	network timeout
32	network not allowed - emergency calls only
40	network personalization PIN required
41	network personalization PUK required
42	network subset personalization PIN required
43	network subset personalization PUK required
44	service provider personalization PIN required
45	service provider personalization PUK required
46	corporate personalization PIN required
47	corporate personalization PUK required
48	hidden key required (NOTE: This key is required when accessing hidden phonebook entries.)
132	service option not supported (#32)
133	requested service option not subscribed (#33)
134	service option temporarily out of order (#34)
149	PDP authentication failure

Firmware Upgrade

Firmware upgrade is to update your SABRE™ Ranger terminal with the latest firmware. Please refer to your respective distributor for your firmware download.

Warning:
DO NOT abort the upgrading process or unplug the power of the SABRE™ Ranger terminal during the firmware upgrade process at any time. Doing so will corrupt the existing firmware loaded onto the SABRE™ Ranger terminal.

Note:
Before upgrading the SABRE™ Ranger terminal with the new firmware, please read through the release notes that is provided with the new firmware.

Follow these steps to upgrade the firmware for your SABRE™ Ranger terminal:

1. Download or acquire the new firmware from your respective distributor and save it in your computer's hard drive.

   Note:
   Make sure the SABRE™ Ranger terminal is switched on and connected to the desktop/laptop computer via the Ethernet cable.

2. Insert the SABRE™ Ranger Product CD into your computer's CD-ROM drive.

3. From the SABRE™ Ranger Main Setup menu, select Software Utilities.

4. Select Firmware Upgrade and click Run.

5. Select the downloaded new firmware (with the file name extension ".sb1", e.g., RNG070.0.4.sb1) and click Start.
   Firmware upgrade will take approximately 10 to 12 minutes to complete.

   Note:
   If you encounter any errors (such as timeout errors) during the firmware upgrade process, do not select the Retry option.

   Power down the SABRE™ Ranger terminal and unplug the power supply. Close the Firmware Upgrade utility.

   Next, connect the power supply and power up the SABRE™ Ranger terminal. Start the Firmware Upgrade utility and attempt the firmware upgrade process from the beginning.

Voice Mail Access

When a caller leaves a Voice Mail in the user's Voice Mail account, the network will send a SMS message prompting the user about the presence of a Voice Mail in his/her account.

Note:
For users accessing the mailbox for the first time, follow these steps to access the Voice Mail:

1. Dial the Voice Mail Number: 00870772001899.
2. Follow the guided instructions and prompting from the system to activate the Voicemail.

   Listed below is the procedure for Voice Mail activation:

   i. Enter a four digit PIN code followed by # key.
   ii. Press 1 key to confirm the PIN code.
   iii. Enter your name or a generic name: Please say "Test Voice Mail" (again, for consistency).
   iv. Press 1 key to confirm the name.
   v. Enter a Greeting: Please say "Test Voice Mail" (again, for consistency).
   vi. Press 1 key to confirm the greeting.

You will be able to use the Voice mail features after the activation.

The BGAN System

Inmarsat's Broadband Global Area Network (BGAN) is the world's first mobile communications service of any kind to provide both voice and broadband data simultaneously through a single, truly portable device on a global basis.

It is also the first mobile communication service to offer guaranteed data rates on demand.

Delivered via the world's most sophisticated commercial communication satellites, BGAN provides affordable, mobile broadband services at speeds up to half a megabit in a highly portable, easy to use form.

Delivering the global broadband mobile office

BGAN extends the boundaries of the broadband mobile office that 3G services are beginning to deliver.

Data

With the Standard IP service you can access your corporate network via a secure VPN connection at speeds up to 492 kbps, to use e-mail and other office applications, browse the Internet and send large file attachments.

Streaming IP

For applications where quality of service is paramount, such as live video or video-conferencing, BGAN offers a Streaming IP service up to 256 kbps on demand. You have the flexibility to choose the data rate on a case-by-case basis, depending on your application.

Phone

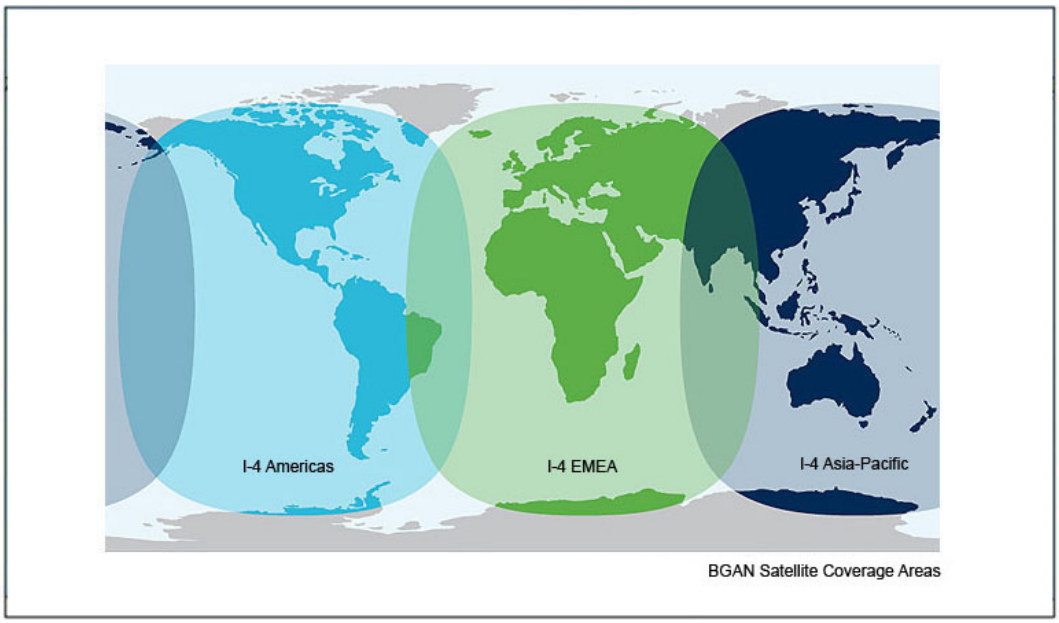
With BGAN, you can make a phone call at the same time as accessing your data applications. You can use a standard desktop phone or custom handset. Voicemail and other standard 3G mobile supplementary services are also available.

Text

BGAN enables you to send and receive text messages via your laptop - up to the standard 160 characters - to or from any mobile phone.

BGAN coverage

BGAN delivers seamless network coverage across most of the world's landmass. It enables you to get broadband connectivity wherever you go - not just in major cities or at the airport. The BGAN service is accessible throughout Europe, Africa, the Middle East, Asia, North, South and Central America.



BGAN Satellite Coverage Areas

BGAN for SCADA Solution

Addvalue has an intelligent and programmable “Machine to Machine” (M2M) application enabler device called the IOTA™.

The IOTA™ together with the SABRE™ Ranger terminal forms a unique equipment suite suitable for SCADA applications. This suite combination supports unmanned SCADA applications in remote, hard-to-access or hazardous locations. The IOTA™ is specially designed to control both the SABRE™ Ranger and to interface with various types of SCADA equipment.

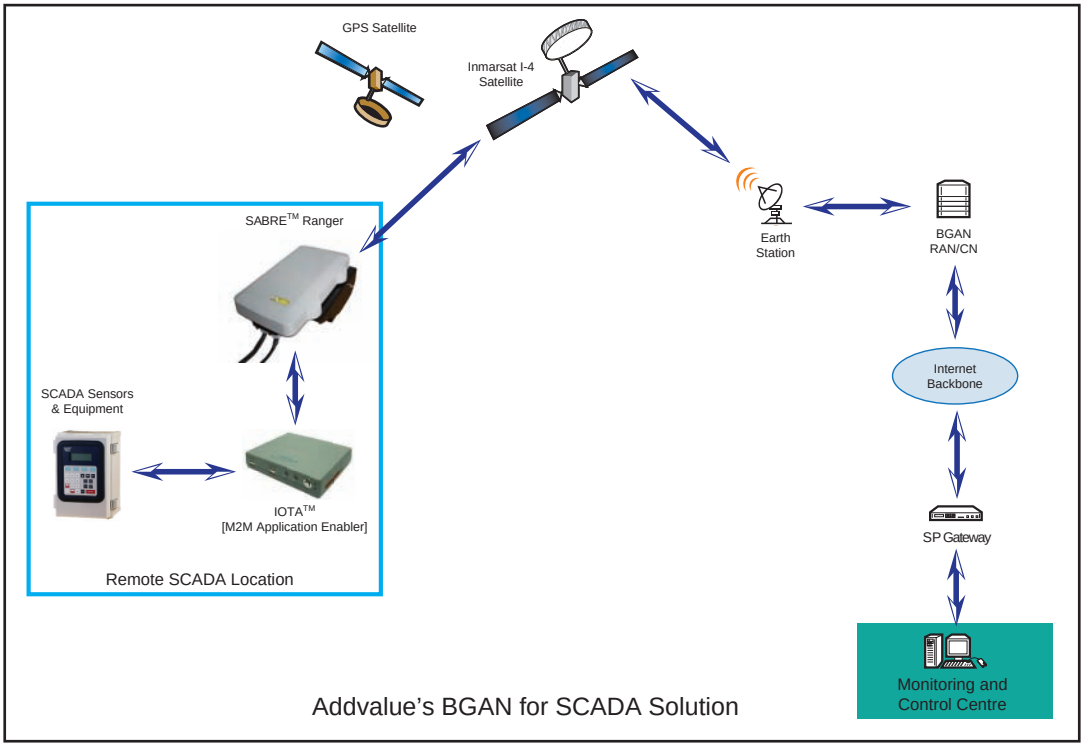
Addvalue’s Wideye™ IOTA™ supports WinCE programming. Clients can development their software applications on this platform. These applications can be tailored for command and control of their particular SCADA equipment and the SABRE™ Ranger. The entire equipment suite – SABRE™ Ranger, IOTA™ and the SCADA equipment - can then be remotely accessed from the user’s headquarter via the Inmarsat BGAN network.

In the setup depicted below, the SABRE™ Ranger is used as a BGAN communication terminal for transmitting SCADA data to the Monitoring and Control Centre (MCC) that typically is located far away from the remote SCADA location. In this application, the IOTA™ is acting as a controller to manage between the SCADA equipment and the SABRE™ Ranger. It controls the SCADA equipment for data collection and at the same time manages the transmission, whether periodically or continuously, over BGAN via the SABRE™ Ranger terminal. The IOTA™ can host applications to run regular diagnostic tests on the SCADA equipment where necessary or act as a gateway for remote access to perform diagnostic checks.

In a typical SCADA application scenario, the IOTA™ will collect and compress data from the SCADA sensors and send them to the MCC. Likewise, the MCC can draw data from the remote SCADA site when necessary. In instances where the MCC needs to perform diagnostic checks on the SCADA sensors, it can do so via the IOTA™.

The IOTA™ also functions as a health-screener on the SABRE™ Ranger terminal. It will periodically poll the health of the SABRE™ Ranger terminal and perform necessary self recovery routine if required. In severe situations where the self recovery routine fails, the IOTA™ can power cycle the SABRE™ Ranger terminal via its internal power relay circuit.

For more information about the IOTA™, please refer to our website www.wideye.com.sg.



Addvalue’s BGAN for SCADA Solution

Wideye™ IOTA™

Addvalue's Wideye™ IOTA™ is a small portable M2M applications enabler designed to replace the laptop/PC for use with the SABRE™ Ranger terminal. IOTA™ is developed to manage unmanned operations in a remote, hard-to-access or hazardous location.

Features

Hardware
The hardware platform is an embedded ARM-9 microprocessor based system.

Operating System
WinCE

Interface

1. IOTA™ and SABRE™ Ranger terminal: Ethernet.
2. IOTA™ and monitoring equipment: RS232, USB or GPIO.
3. User interface
   The IOTA™ has a VGA port for the connection to a standard display monitor. A four port (host) USB hub is ready for a USB keyboard and a USB mouse for the technician to perform tasks such as system configuration, diagnosis and firmware upgrade.

Wideye™ IOTA™ Technical Specifications:

Feature	Description
Processor	200MHz ARM9 processor
Memory	64MB SDRAM, 64MB NAND FLASH
Network Support	10/100baseT Ethernet MAC (RJ45)
USB	x4 USB v1.1 host ports (four USB type A connectors). Supports Full Speed (12 Mbit/s) and Low Speed (1.5Mbit/s) devices. Each port can source up to 100mA.
	USB v1.1 Client port (mini USB connector)
Serial ports	x3 RS232 (D-SUB 9) – up to 230.4Kbits/s – (16 byte Tx/Rx FIFO) – Tx, Rx only via RS232
General purpose I/O	x4 Optically isolated digital inputs (Terminal Blocks) x4 Optically isolated digital outputs (Terminal Blocks)
LED	X2 User programmable LED
Video	VGA Connector (D-SUB15)
Input voltage	15V DC ± 10%
Power Consumption(Max)	5W
Operating Temperature	-20°C to +60°C
Humidity	10% to 90% (non-condensing)
Weight	420g
Size	187mm x 156mm x 42mm

For more information about the IOTA™, please refer to our website www.wideye.com.sg.

AT Commands List

General commands (3GPP TS 27.007)	
Request manufacturer identification	+CGMI
Request model identification	+CGMM
Request revision identification	+CGMR
Request product serial number identification	+CGSN
Request international mobile subscriber identity	+CIMI

Generic TE-TA Interface & TA Control Commands (ITUT V.25ter)

Call control commands and methods (3GPP TS 27.007)	
ITUT V.25ter dial command	D
Hangup call	+CHUP
Extended error report	+CEER
Silence Command	+CSIL

Network service related commands (3GPP TS 27.007)	
Subscriber number	+CNUM
Network registration	+CREG
PLMN selection	+COPS
Facility lock	+CLCK
Change password	+CPWD
Calling line identification presentation	+CLIP
Calling line identification restriction	+CLIR
Connected line identification presentation	+COLP
Closed user group	+CCUG
Call forwarding number and conditions	+CCFC
Call waiting	+CCWA
Call related supplementary services	+CHLD
Call deflection	+CTFR
Unstructured supplementary service data	+CUSD
Supplementary service notifications	+CSSN
List current calls	+CLCC
Read operator names	+COPN
eMLPP Priority Registration and Interrogation	+CAEMLPP
eMLPP subscriptions	+CPPS
Fast call setup conditions	+CFCS
Automatic answer for eMLPP Service	+CAAP

Mobile Termination control and status commands (3GPP TS 27.007)	
Phone activity status	+CPAS
Set phone functionality	+CFUN
Enter PIN	+CPIN
Battery charge	+CBC
Mobile Termination event reporting	+CMER
Select phonebook memory storage	+CPBS
Read phonebook entries	+CPBR
Find phonebook entries	+CPBF
Write phonebook entry	+CPBW
Generic SIM access	+CSIM
Restricted SIM access	+CRSM
Secure control command	+CSCC
Set Voice Mail Number	+CSVM
Master Reset	+CMAR
Mobile Termination errors - Report Mobile Termination error	+CMEE

Commands for the Packet Domain (3GPP TS 27.007)	
Define PDP Context	+CGDCONT
Define Secondary PDP Context	+CGDSCONT
Traffic Flow Template	+CGTFT
Quality of Service Profile (Requested)	+CGQREQ
Quality of Service Profile (Minimum acceptable)	+CGQMIN
3G Quality of Service Profile (Requested)	+CGEQREQ
3G Quality of Service Profile (Minimum acceptable)	+CGEQMIN
Network Attach or Detach	+CGATT
PDP context activate or deactivate	+CGACT
PDP Context Modify	+CGCMOD
Show PDP address	+CGPADDR
Packet Domain event reporting	+CGEREP
GPRS network registration status	+CGREG
Select service for MO SMS messages	+CGSMS

Generic TE-TA interface & TA control commands (ITUT V.25ter)	
Command line termination character	S3
Response formatting character	S4
Command line editing character	S5
Command echo	E
Result code suppression	Q
Command response (verbose format)	V
CONNECT result code format (values manufacturer specific)	X
Soft reset (clears memory and retrieves the stored values)	Z
Factory Reset	&F

Modem compatibility commands (3GPP TS 27.007)	
Request Packet Domain IP service	D

DTMF and tone generation (3GPP TS 27.007)	+VTS

SMS Service (3GPP TS 27.005)

General Configuration AT-Commands	
Select Message Service	+CSMS
Preferred Message Storage	+CPMS
Message Format	+CMGF
Message Service Failure Result Code	+CMS ERROR

Message Configuration Commands (3GPP TS 27.005)	
Service Centre Address	+CSCA
Set Text Mode Parameters	+CSMP
Show Text Mode Parameters	+CSDH
Save Settings	+CSAS
Restore Settings	+CRES

Message Receiving and Reading Commands	
New Message Indications to TE	+CNMI
List Messages	+CMGL
Read Message	+CMGR
New Message Acknowledgement to ME/TA	+CNMA

Message Sending and Writing Commands	
Send Message	+CMGS
Send Message from Storage	+CMSS
Write Message to Memory	+CMGW
Delete Message	+CMGD
Send Command	+CMGC

Inmarsat Proprietary Commands

BGAN Specific AT-Commands	
_IPOINT	Antenna Pointing
_INIS	Network Interface Status
_ITFT	UT Traffic Flow Template
_ITEMP	UT Temperature
_ILOG	Retrieve UT log file
_IMETER	Call Metering
_ISIG	Signal quality indication
_IBNOTIFY	Control the sending of unsolicited result codes

Technical Specifications

Air Interface

Inmarsat-4 Air Interface:	
Frequency Band	Receive: 1525MHz - 1559MHz Transmit: 1626.5MHz - 1660.5MHz
Channel Modulation	Receive: QPSK and 16QAM Transmit: π/4 QPSK
Antenna	Built-in Patch Antenna, 8dBic
Transmitting Power	EIRP 10dBW +/- 1dB accuracy
GPS Air Interface	Integrated GPS receiver & antenna
Maximum Bearer Data Rate	Receive: Up to 384 kbps Transmit: Up to 240 kbps
Streaming IP	32/64 kbps

Hardware Interface

Ethernet/LAN	1 x Ethernet port (RJ45) Standard: IEEE 802.3 10Base-T Data Rate: 10Mbps Transmission Mode: Full/Half Duplex Maximum Cable Length: Up to 100 meters or 328 feet
Phone	1 x Phone port (RJ11) Standard: Complex Impedance-ETSI EG201 188

User Interface

SABRE™ Ranger Web Console	The Web Console allows the SABRE™ Ranger terminal to be accessed via a PC or laptop. Functions supported by Web Console are as follows: • System Setup: Assists the user in accurately pointing the terminal at the Inmarsat-4 satellite for maximum signal strength. • Data streaming at selected rates. • Telephony • Security settings • Data logging • SMS • GPS • Network Services • Usage tracking

Environmental - SABRE™ Ranger

Operating Temperature (Ambient): **SABRE™ Ranger-V1** **SABRE™ Ranger-V2 (with Heater option)**	 -20°C to +75°C, -4°F to +167°F -40°C to +75°C, -40°F to +167°F
Storage Temperature (Ambient): Terminal	-40°C to +80°C, -40°F to +176°F
Operating Humidity	95% non-condensing at +40°C or +104°F
Storage Humidity	5% RH to 95%RH

Compliance Approvals

FCC IDENTIFIER	QY9-SBRANGER
FCC Rules	Parts 2, 15 and 25: 2008
Industry Canada	RSS – 170 Issue 1, Revision 1: Nov. 1999
IC IDENTIFIER	IC: 5023A-SBRANGER
CE Marked	Notified body number 1177
	Statement of Opinion number – TCF-471SC9
IEC CB Certification	IEC 60950 – 1 AND EN 60950-1
R&TTE Directive 1999/5/EC	ETSI EN 301 489-1 , ETSI EN 301 489-20, ETSI EN 301 681, ETSI EN 300 328 , EN 50385 , EN 50371, ITU-R M.1480
CSA Safety	cCSAus , CAN/CSA C22.2 No.60950-1 , ANSI/UL 60950-1 and CAN/CSA C22.2 No.60950-22 , ANSI/UL 60950-22
Inmarsat Type Approved	B3AD01
RoHS-EU Directive 2002/95/EC	Tested to IEC 62321 Ed1 – Part 6.
Ingress Protection	IP 65 (IEC 60529: 2001)

Electrical Characteristics

SABRE™ Ranger-V1:	
DC Input	15V DC (Power adapter)
Power Consumption: Standby Operating	 6 watts 22 watts

SABRE™ Ranger-V2 (with Heater option):	
DC Input	15V DC (Power adapter)
Power Consumption (Terminal): Standby Operating Power Consumption (Heater Element):	 6 watts 22 watts 20 watts (maximum)

Power Adapters:	
Model	DSA-0421S-1 42
AC Input	100 - 240 V, 50/60 Hz, 1.2 A
DC Output	15V DC, 2.8 A

Physical Characteristics

Weight	1.5 kg 3.3 lbs
Dimensions	305 x 186 x 49 mm 12 x 7.32 x 1.93 in.